Overland Storage

NEO™ 2000/4000 Library

User Guide

April 2008
10400171-101

Overland STORAGE®

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Preface

This guide provides installation instructions and operational information necessary for using the Overland Storage® NEO™ 2000 or NEO 4000® tape library. It assumes you are familiar with basic functions of your computer, SCSI devices, and networking. It also assumes you are knowledgeable about the Storage Area Network (SAN) to which your NEO library is being connected.

Product Documentation

NEO SERIES® product documentation and additional literature are available online at:
http://www.overlandstorage.com.

Downloading Firmware Updates

The latest release of the firmware for the NEO 2000 and NEO 4000 libraries can be obtained from the Overland Storage FTP site:

1. Point your browser to: **ftp://ftp.overlandstorage.com/outgoing/nextgen**.
2. Download and install the latest firmware file.
   For example, download the file labeled **NeoLib_*nnn*.bin** (were "*nnn*" represents the latest version number).

For more assistance, search for help at: http://support.overlandstorage.com/.

Conventions

This user guide exercises several typographical conventions to help explain how to use your NEO 2000 or NEO 4000 library.

Convention	Description & Usage
Boldface	Words in *boldface* indicate items to select such as menu items or command buttons.
Ctrl-Alt-r	This *type of format* details the keys you press simultaneously. In this example, hold down the **Ctrl** and **Alt** keys and press the **r** key.
NOTE	A *Note* indicates neutral or positive information that emphasizes or supplements important points of the main text. A note supplies information that may apply only in special cases; for example, memory limitations or details that apply to specific versions of a program.
IMPORTANT	An *Important* note is a type of note that provides information essential to the completion of a task or that can impact the product and its function.
CAUTION	A *Caution* contains information that the user needs to know to avoid damaging or permanently deleting data or causing physical damage to the hardware or system.
WARNING	A *Warning* contains information essential to people's safety. It advises users that failure to take or avoid a specific action could result in physical harm to the user or hardware.
Flow Indicator (**>**)	Words in boldface with a greater than sign between them indicate the flow of actions to accomplish a task. For example, **Setup > Passwords > User** indicates that you should press the Setup button, then the Passwords button, and finally the User button to accomplish a task.

Overland Technical Support

For help configuring and using your NEO SERIES library, search for help at:

http://support.overlandstorage.com/

Our Overland Storage Technical Support staff is also available to assist you by phone at:

1.877.654.3429 (Toll-free and active only in US and Canada)

1.858.571.5555 x5 (Worldwide)

On normal business days 6 AM through 5 PM (California time) excluding Overland® holidays. At all other times we will respond to technical support calls within 4 hours.

Technical support for our European customers is available from our United Kingdom office at:

+44 (0) 118-9898050

9:00 am to 5:00 pm (GMT) Monday through Friday

You can e-mail our technical support staff at techsupport@overlandstorage.com.

Electrostatic Discharge Information

A discharge of static electricity can damage static-sensitive devices. Proper packaging and grounding techniques are necessary precautions to prevent damage. To prevent electrostatic damage, observe the following precautions.

- Transport products in static-safe containers such as conductive tubes, bags, or boxes.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
- Cover the library with approved static-dissipating material.
- Use a wrist strap connected to the work surface and properly-grounded tools and equipment.
- Keep the work area free of non-conductive materials such as foam packing materials.
- Make sure you are always properly grounded when touching a static-sensitive component or assembly.
- Avoid touching pins, leads, or circuitry.

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Chapter 4 - Daily Operations

Chapter 5 - Graphical User Interface Usage

Chapter 6 - WebTLC Usage

CHAPTER 1

Introduction

Overview

The Overland NEO SERIES 2000 and 4000 libraries are for enterprises that measure backup in terabytes and have no tolerance for downtime.

The libraries support the latest in tape drive technology and are designed for backup operations with high-end networks and high-performance servers. The libraries also feature high availability, maximum storage density, and easy serviceability.

This chapter describes the major components of the NEO 2000 (Figure 1-1) and 4000 (Figure 1-2 on page 1-2) library modules, including:

- Models and accessories
- Multi-module library systems
- Library interfaces
- Virtual Interface Architecture (V.I.A) Options
- Tape drives
- Magazines
- Power supply
- Library Controller card
- Robotics
- Front panel indicators

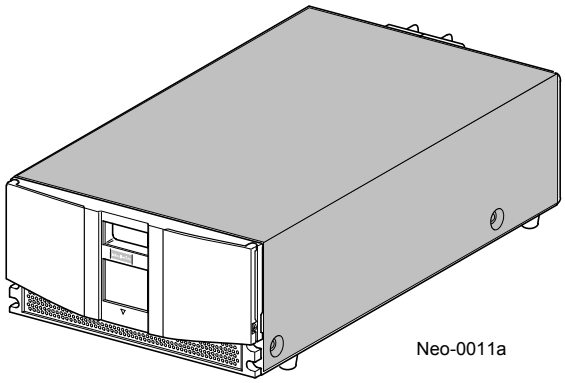


Figure 1-1: NEO 2000 Library

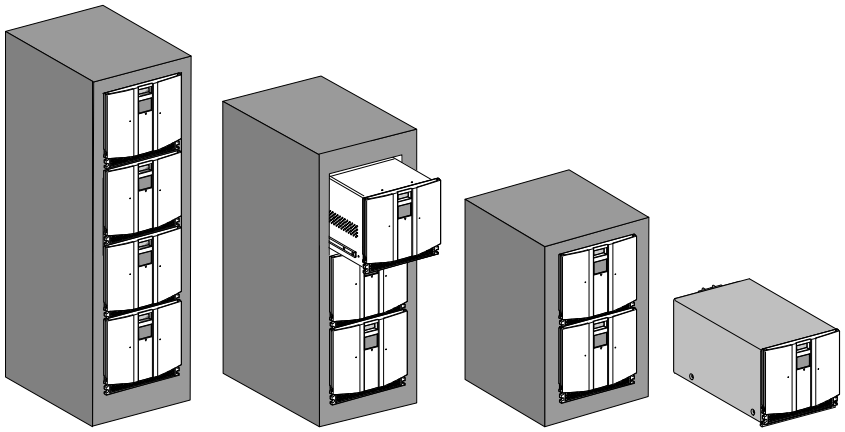


Figure 1-2: NEO 4000 Different Libraries and Configurations

Library Interfaces

The NEO SERIES library modules include as standard, a SCSI interface-to-host system that supports Low Voltage Differential (LVD) or Single Ended (SE) attachment. Other interfaces, including HVD SCSI and Fibre Channel are available with optional V.I.A. cards. The tape drives and robotics control functions with each using separate SCSI connections and SCSI ID addresses. The drive SCSI I/O is provided through VHDCI, 68-pin, SCSI connectors located at the rear of the unit directly under the tape drives. The robotics SCSI I/O is provided through VHDCI, 68-pin, SCSI connectors located on the library controller card.

Virtual Interface Architecture

Virtual Interface Architecture provides you with the ability to change or add highly integrated interface options to the NEO SERIES library, offering tremendous flexibility and investment protection. V.I.A. is your gateway for customizing your NEO SERIES library modules to provide seamless integration to your storage network backup needs. Options currently available include:

- Fibre Channel Option (FCO), provides connectivity to Fibre-based SANs.
- Library Partitioning Option (LPO), provides logical soft partitioning to the magazine level between heterogeneous servers and backup software applications.
- Gigabit Ethernet Option (GEO), provides Gigabit Ethernet technology transforming the library into a network-enabled addressable device. Available with either NDMP (GEOn) or iSCSI (GEOi) protocols for either SAN and NAS environments.
- High Voltage Option (HVO), provides connectivity to High Voltage Differential SCSI systems.

Tape Drives

The NEO 2000 library supports 0-2 drives and the NEO 4000 library supports up to 4 drives (Figure 1-3). All inactive tape drives are hot-swap capable (LiveSwap™). SCSI I/O is accomplished through two VHDCI-series, 68-pin, SCSI connectors located at the rear of the library directly under each tape drive.

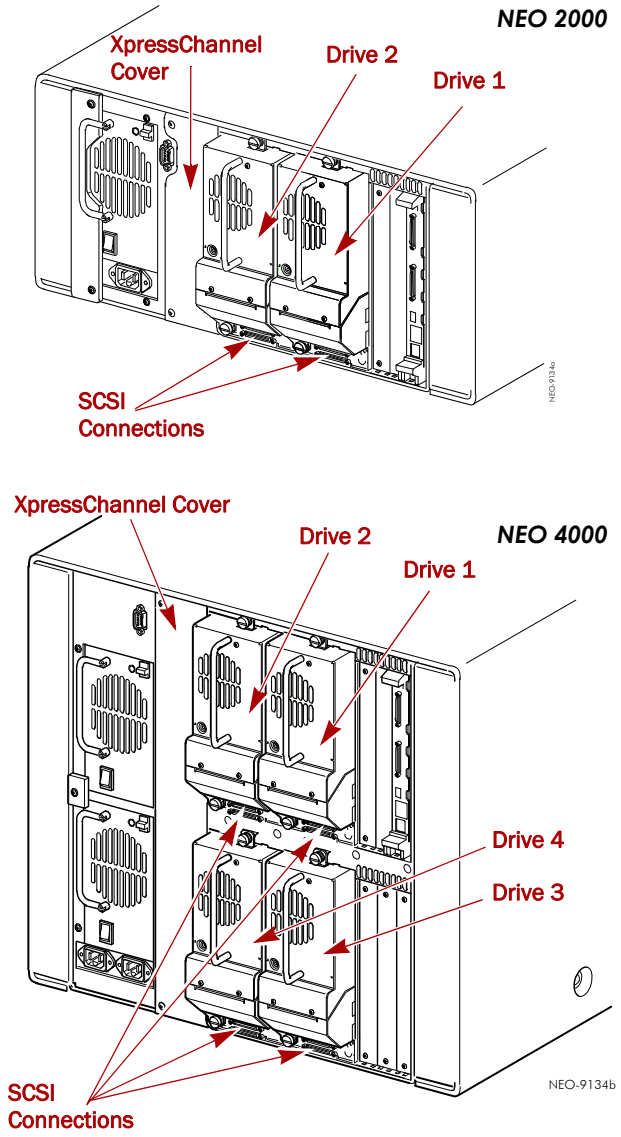


Figure 1-3: NEO SERIES Tape Drive and Connector Locations

Library Magazines

The NEO 2000 library contains two removable tape cartridge magazines and the NEO 4000 library contains four removable tape cartridge magazines. These magazines are accessible through the front doors (see Figure 1-4 on page 1-4). The front doors of either unit are opened using the GUI touch screen on the control panel.

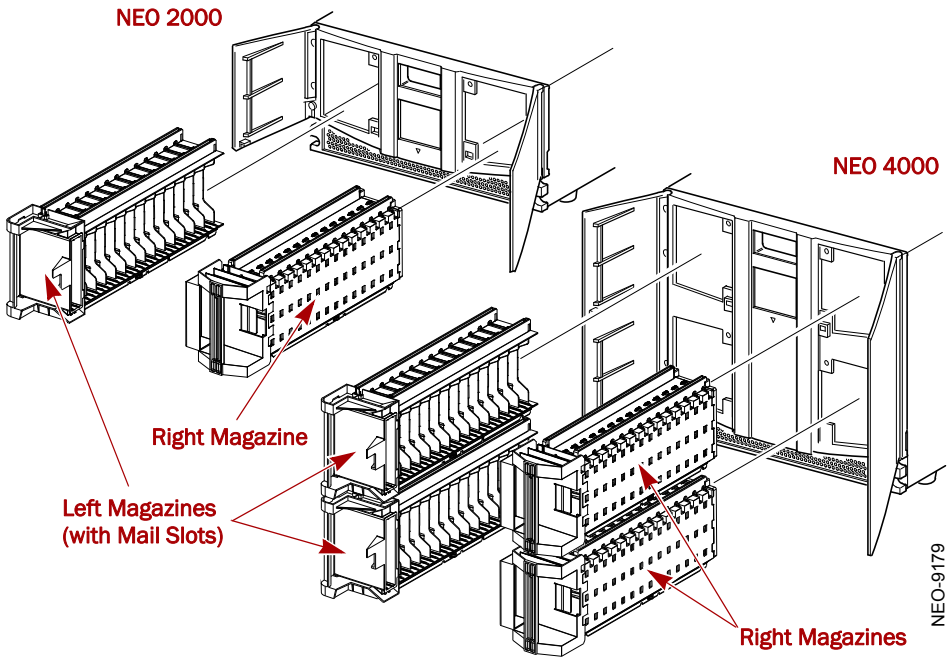


Figure 1-4: NEO SREIES Library Magazines

Mail Slots

Looking at the front of NEO SERIES library, the left tape magazines also include a Mail Slot, which is accessible when that magazine slot's door is open (see Figure 1-5). Pivoting forward, this Mail Slot feature lets you insert or remove a single media cartridge without interrupting library operation (by removing the entire magazine). If a full tape cartridge magazine is required, you can configure the library to disable the Mail Slot feature. The right tape magazine contains fixed cartridge slots (no Mail Slot feature), so it retains its full capacity at all times.

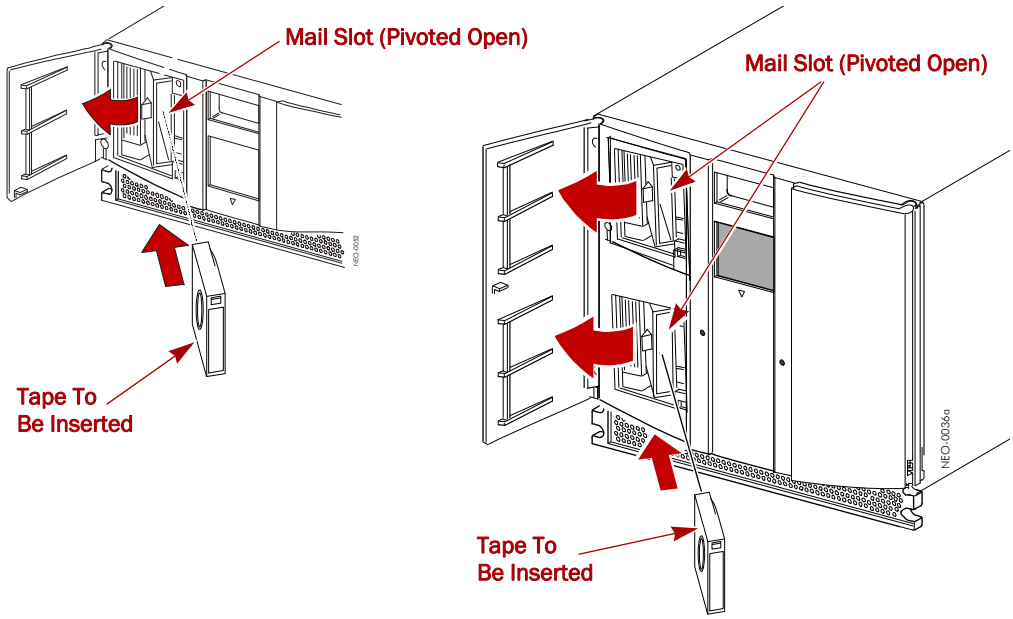


Figure 1-5: Mail Slot Access

Power Supplies

CAUTION: The power supply is NOT to be removed by the operator. Hazardous voltage is present in the cavity if the power cord is not removed.

Power to the libraries is supplied through AC connectors at the rear panel of the power supply. Library power is normally controlled from the Graphical User Interface (GUI) touch screen; however, a manual power disconnect switch, located at the rear of the power supply, may also be used.

The modular power supplies are located at the rear of the library (see Figure 1-6). These auto-ranging power supplies are capable of using any nominal AC voltage between 100 and 240 Vac power, at 50 Hz or 60 Hz. Each has an ON indicator LED that lights after touching the GUI to power ON the library. A tool is required to remove a power supply from its bay.

The NEO 4000 has two power supplies to provide redundancy for mission critical operations and avoid power interruption to the library. Both power supplies share the load under normal operating conditions. However, if one of the power supplies fails, the other will assume the full load.

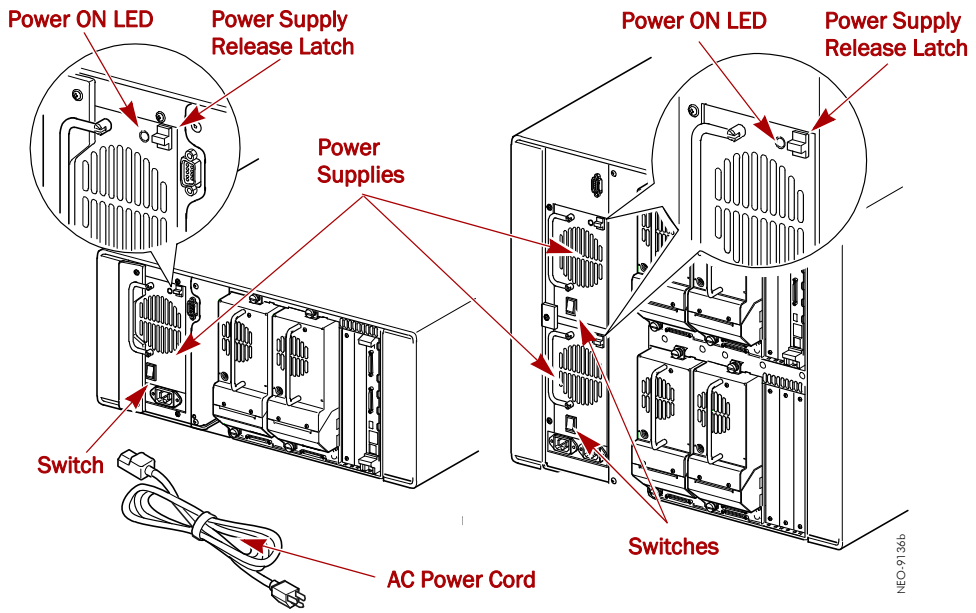


Figure 1-6: NEO SERIES Power Supplies

Library PCI Cards

The libraries contain a rear-access card cage, (see Figure 1-7) with a Compact PCI backplane. This backplane contains the plug-in connectors for the library's Library Controller card and Virtual Interface Architecture (V.I.A.™) cards:

- Fibre Channel Option (FCO)
- High Voltage Option (HVO)
- Library Partition Option (LPO)
- Gigabit Ethernet Option (GEO)
- Internal Router

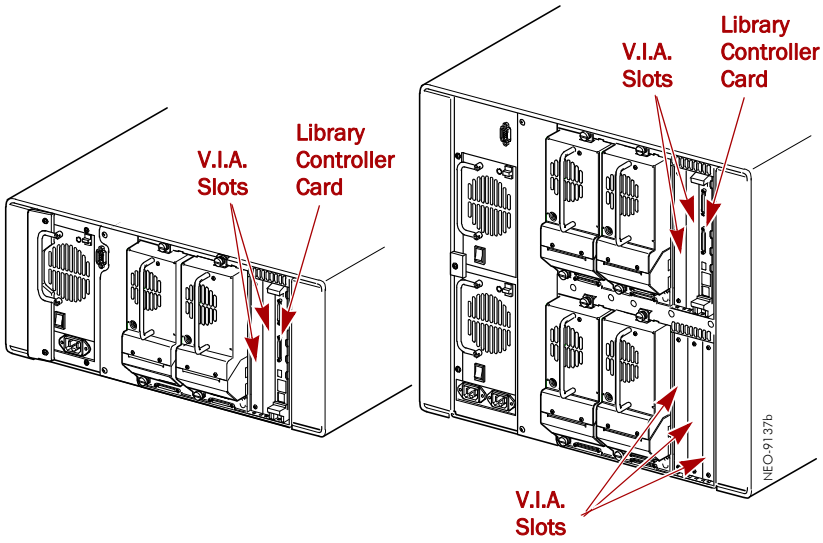


Figure 1-7: Library Controller Card and PCI Slots

The Library Controller card contains a single microprocessor and associated logic devices to control all robotics operations and manage overall library functions. The microprocessor enables the SCSI interface between the library and the host system. It also manages the WebTLC® (Web Total Library Control) feature accessible over an Ethernet connection.

WebTLC is one of the functions built in to the library controller card. WebTLC enables the you to remotely monitor and control the tape library from any terminal in a local network or the internet. See Chapter 6, "WebTLC Usage."

The Library Controller card is installed in a card cage at the rear of the library which also contains the V.I.A. options, and can be serviced without requiring special tools.

NOTE: The Library Controller card must always be installed in the **right-most** slot in the card cage. On the NEO 4000, it must be installed in the right-most slot of the **upper** card cage (the lower card cage connections do not support the card).

Robotics

The library module robotics consists of a cartridge shuttle, motor hardware, motor drives, and other support electronics. These robotics are capable of picking and placing tapes throughout a 180-degree arc that consists of the tape drives, tape cartridge magazines, and an optional XpressChannel.

The cartridge shuttle assembly includes a mounted barcode reader for scanning tape cartridges installed in the magazines and tape drives.

NOTE: Both a full barcode reader scan and a physical scan are conducted each time the library is initially powered up or each time a tape magazine is exchanged.

Front Panel Indicators

The NEO SERIES Library modules front panel indicators (Figure 1-8) consist of the following:

- Viewing window - lets you visually check the unit's internal operations.
- GUI touch screen - manually operated to setup and configure the library.
- Library module status LED - displays the unit's operational status.
  - OFF – Power is OFF.
  - ON – Power is ON and library is online
  - Flashing – Power is ON and library is offline

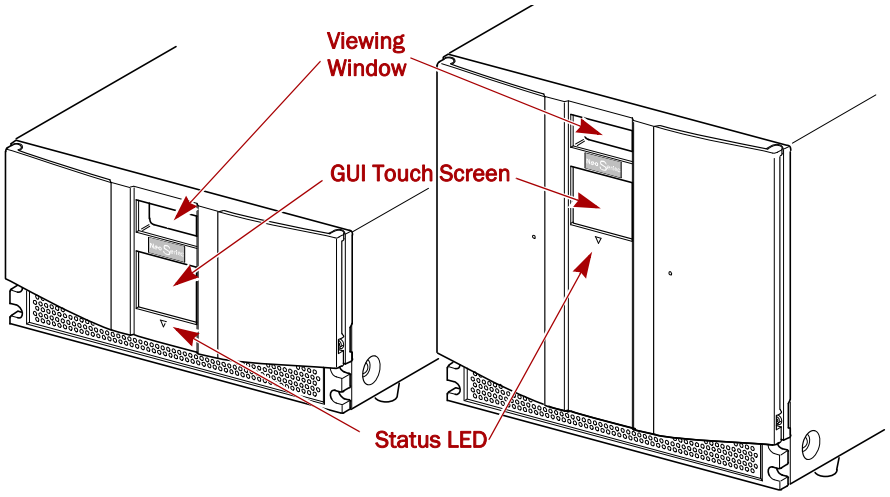


Figure 1-8: NEO SERIES Front Panel

Multi-Module Library Systems

The NEO SERIES Library Modules are modular expandable tape libraries that may be configured in a variety of module and drive combinations. The drives are mounted in a removable drive "shoe", allowing easy user installation and removal and to allow swapping a failed drive without requiring that the server or library power be cycled.

The NEO SERIES libraries can be stacked in a scalable combination with additional NEO 2000 or NEO 4000 library modules to form a multi-module, rack-mounted configuration. Through the use of an optional rear-mounted elevator assembly (Figure 1-9), all multi-module libraries in the stack can operate together as a single virtual library system. Stacked units are interconnected through their rear panel Ethernet connections to an optional Router card in the Master library.

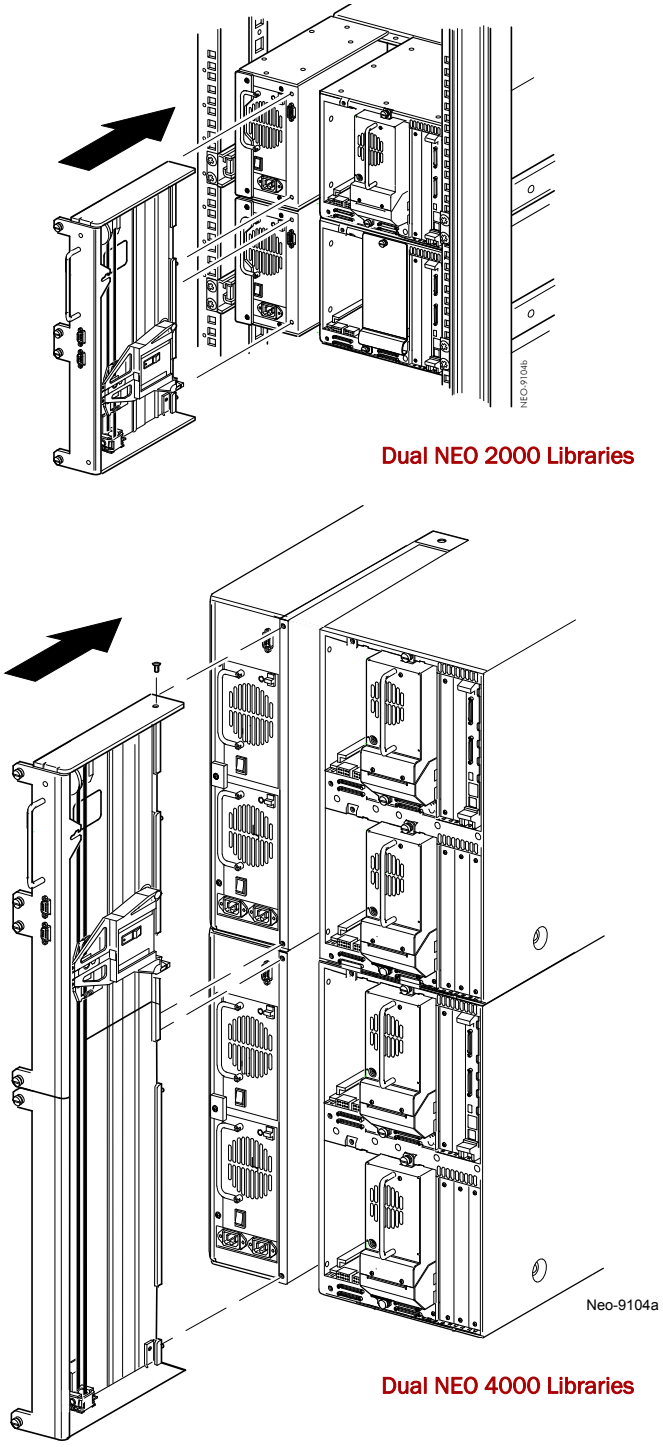


Figure 1-9: Elevator Assembly Locations

Any combination of modules, not exceeding 40U may comprise the library system. The library system appears to the host computer system and library control software as a single library. For multi-module applications, the top library module becomes the primary Master module and all other lower libraries are Slave modules.

Each library's robotics pick and place tape cartridges into a movable elevator in the elevator assembly allowing individual tapes to be passed up or down between the libraries contained in the multi-unit library system. Robotics access to the elevator assembly is located at the rear of the library.

NOTE: If a Slave library is powered Off or physically removed from the library configuration during normal library operation, the elevator assembly continues to function between the Master library and any remaining Slave libraries.

CHAPTER 2

Installation and Setup

This chapter explains how to install the NEO SERIES library modules. Sections in this chapter include:

- Activating the Warranty
- Setting Up Tabletop Libraries
- Setting Up Rackmount Libraries
- SCSI Cable Configurations
- Powering Up a NEO Library

Activating the Warranty

Before installing your new unit, it is essential that you activate your NEO SERIES warranty. Technical and warranty support is not available until this step is accomplished.

Use these steps to register your unit at the Overland Storage website:

1. Go to the Overland Technical Support **website** at: http://support.overlandstorage.com/
2. Using the MEMBER LOGIN (Figure 2-1), **log in** to the site.

   NOTE: If you are not yet a member, click the *New member?* link and follow the instructions. It's free and easy!

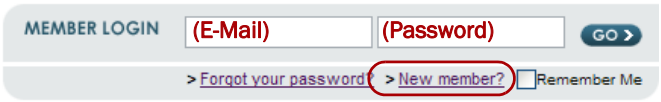


Figure 2-1: Member Login and New Member Link

3. From the menu on the left, select **My Products > Add or Register a Product**.

   Follow the on-screen instructions to complete the process.

   NOTE: To set category watches or receive update notifications, you **must** include an e-mail address with your registration.

Setting Up Tabletop Libraries

NEO SERIES tabletop libraries require no mechanical assembly for mounting (see Figure 2-2). Place the library on a desk, table, or other stable, horizontal surface. Ensure the cooling grills at the front and the fans at the rear of the library are not obstructed. Allow 12 inches (30.4cm) of clearance at the front and 6 inches (15.2cm) at the rear of the units for adequate cooling.

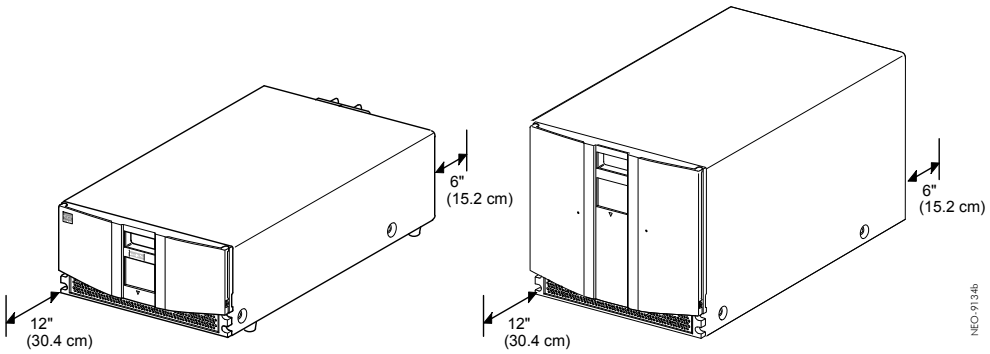


Figure 2-2: Tabletop Library Clearances

Setting Up Rackmount Libraries

A provided *RETMA RACK MOUNTING TEMPLATE* is required for rack mounting your library modules into a RETMA rack. Instructions for attaching the rack mount slides and installing the library module are provided on the template (Figure 2-3 and Figure 2-4 on page 2-3).

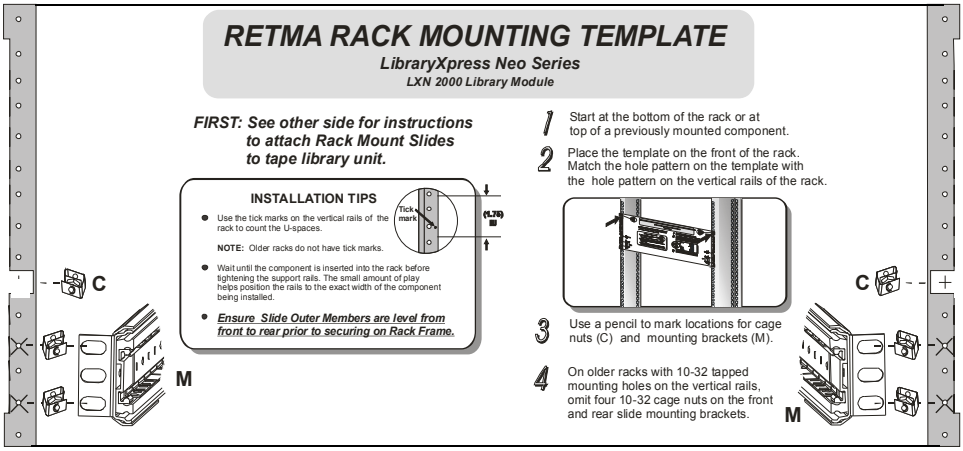


Figure 2-3: NEO 2000 Rack Mounting Template Front

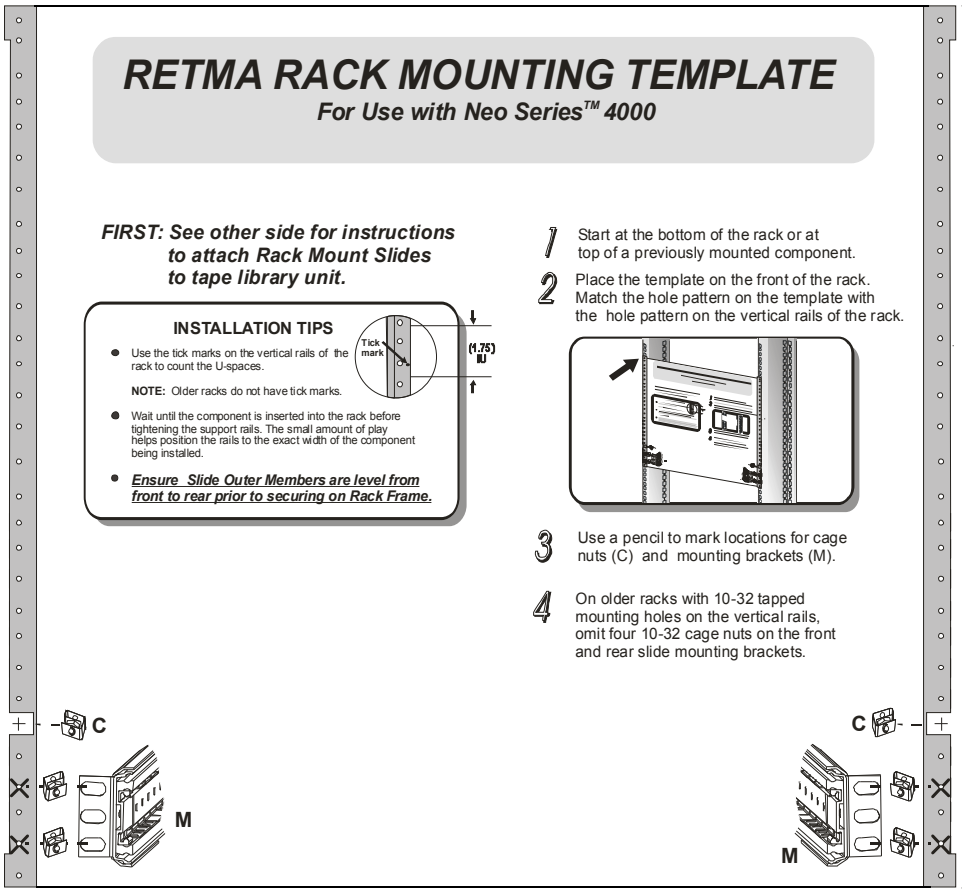


Figure 2-4: NEO 4000 Rack Mounting Template Front

Rackmount Model Installation Preparation

The first step of installing the rackmount models entails the installation of the supplied rails in a standard RETMA rack. The included template is used to mark the appropriate mounting holes on the rack.

WARNING: It is recommended that a mechanical lifter (or at least two people) be used to raise and align the unit to prevent injury during installation. Use care when inserting or removing a NEO library into or out of a rack to prevent the accidental tipping of the unit causing damage or personal injury.

NOTE: Start at the bottom of a rack or the top of the last mounted component to ensure rack stability.

1. Ensure you have **adequate space** available in the rack:
   - NEO 2000 requires 8.75 in. (22.25cm) nominal (5U)
   - NEO 4000 requires 17.5 in. (44.50cm) nominal (10U)
2. Using the **template** (Figure 2-5 on page 2-4) that is shipped with the library, mark the location of the mounting hardware on the RETMA rack rails:

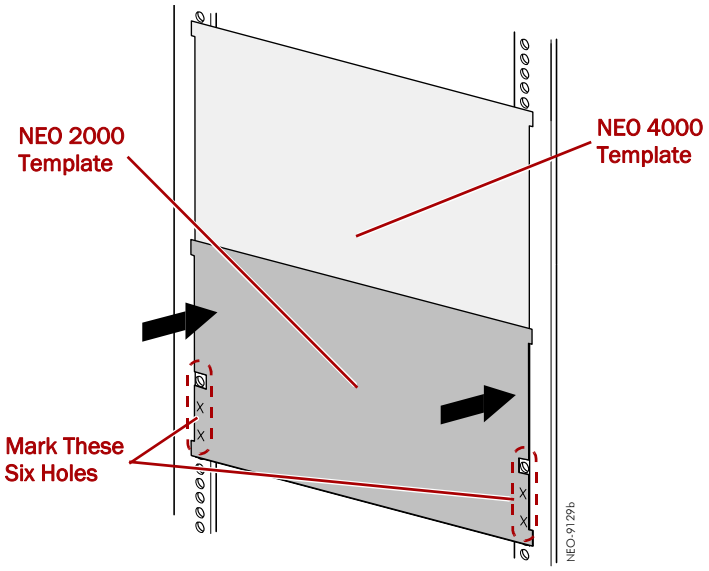


Figure 2-5: Using the NEO Templates

a. Match up the **hole pattern** indicated on the sides of the template with the hole pattern in the rack.

b. Use the template to **mark** the six mounting holes.

c. Remove the **template**.

3. Repeat Step 2 at the **rear** using the four bottom holes.

> **CAUTION:** Be sure rear holes are horizontally in line with the front holes to assure the unit remains level.

4. Attach the rail sets using the supplied fasteners (Figure 2-6):

- **Tapped-Hole Rack**—Position each rail with the brackets outside the vertical rack member and install the four screws.
- **Untapped-Hole Rack**—Install four **cage nuts** on the front and back vertical rack member, position each rail with the brackets outside the member, and install the four screws.

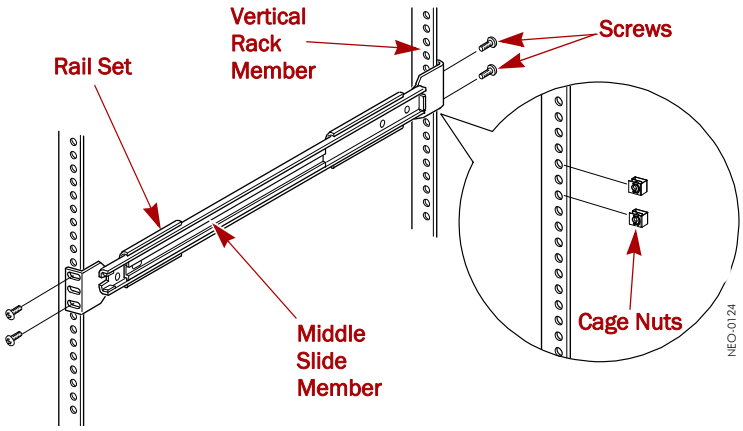


Figure 2-6: Installing Sliding Rack Rails

5. Tighten the **screws** on the **rear** brackets.
6. Slide out the **middle slide** members until locked at the front of the rail assembly.

Library Module Installation

Use the following instructions to insert your library module into a RETMA rack (Figure 2-7):

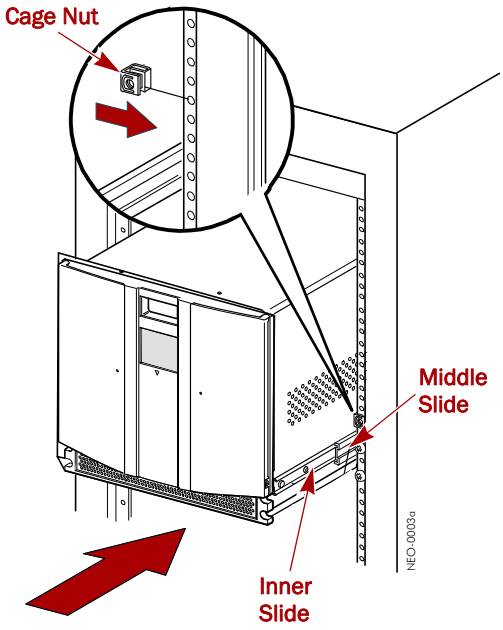


Figure 2-7: Installing The Library Module

1. Install the two **cage nuts** on each of the front rails for the thumbscrews.
2. Lighten the library by removing the **power supplies and drives** at the rear.
3. Using a mechanical lift, **raise the unit and align** the inner slides on the unit with the middle slides in the racks.
4. With the middle slide **ball bearings** at the front detent position, fully insert the inner slides.
5. Slide library module completely into rack until **front panel** touches the rack.
6. Remove and discard the **tape and packing materials** from the doors, leaving them **open**.

7. Using the two captive **thumbscrews**, attach unit to rack (Figure 2-8).

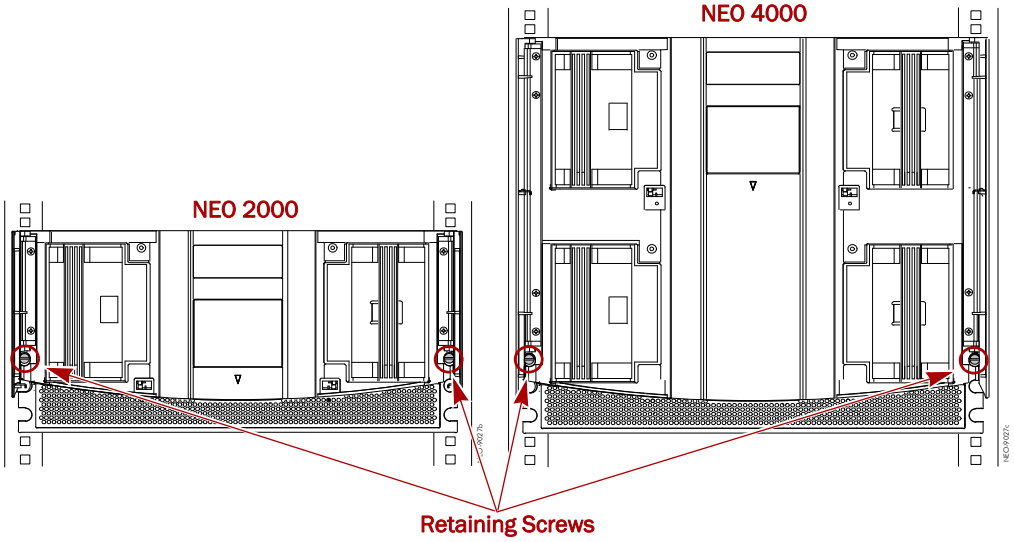


Figure 2-8: Library Retaining Screws

8. Tighten all the **front rail screws**.
9. Re-insert the power supplies and drives into the rear of the chassis.

Opening The Library Module Doors

The magazine doors (Figure 2-9) have both an electrical release (via the GUI touch screen) and a manual release. It is recommended that the doors are always opened using the GUI touch screen. In an emergency, the doors can be manually opened by pushing a stiff wire against the mechanical releases directly behind the front panel.

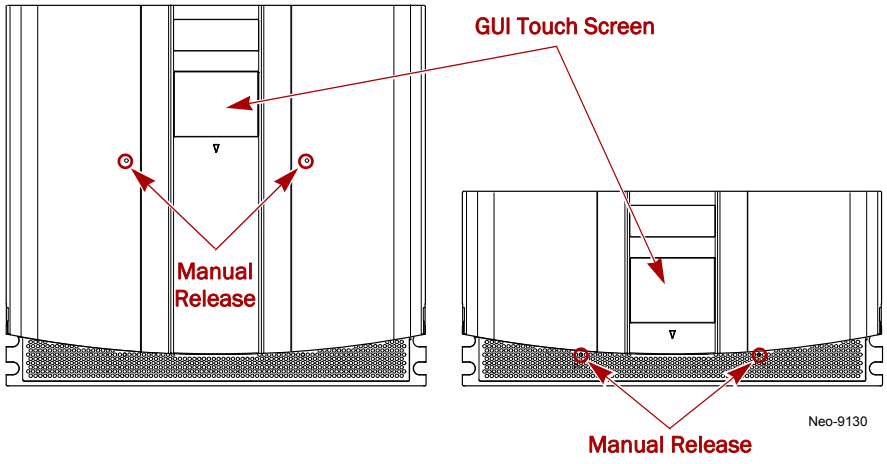


Figure 2-9: Opening Magazine Doors

SCSI Cable Configurations

Before powering up the library module for the first time, cabling to the host system should be completed. This section describes the supported SCSI cable configurations for the NEO SERIES library modules.

IMPORTANT: If the library is powered on without the Library Controller card being terminated, Fault Code *FSC 100F* is displayed in the GUI.

SCSI Interface Connectors

Each NEO SERIES library is equipped with a Low Voltage Differential (LVD) SCSI interface. Other interfaces, such as HVD SCSI or Fibre Channel, are available with optional V.I.A. cards.

NOTE: Because single-ended SCSI exhibits poor performance and reliability, we do not recommend its use in NEO libraries. Use LVD SCSI to get the best performance from your NEO SERIES library.

Each of the tape drives in the library and the internal robotics is a separate SCSI device. When any two or more devices are connected to the same SCSI bus, each separate SCSI device must be assigned a unique SCSI ID. For information on assigning SCSI IDs, see "SCSI ID Settings" on page 3-1.

To connect a library to a host system, the host system must have at least one Wide LVD controller and the appropriate driver software.

Interface Cable Specifications

The library is a high-performance system. To avoid degradation of performance, use the highest-quality interface cables from a reputable manufacturer of computer cables. All SCSI cables used with the library should meet the following requirements:

- Shielded or double-shielded, as required to meet EMI specifications.
- Impedance match with cable terminators that meet current SCSI specifications.
- Characteristic impedance of 115 ohms.

The host cable must also meet the these requirements:

- Each end of a twisted pair ground connected to chassis ground.
- Maximum cable length of 39 ft. (12m) for an LVD SCSI bus.
- Cables of different impedances should not be used together.

NOTE: Additional specifications to assure the highest SCSI performance can be found in the current version of ANSI X3.131.

SCSI Configuration Examples

The NEO SERIES libraries are equipped with SCSI connections permanently mounted beneath each drive bay. Following standard SCSI wiring protocols, it is easy to configure network cabling regardless of the network type, number of hosts, or number of drives.

IMPORTANT: Starting with the LTO-3 drives and going forward, due to the SCSI bandwidth limitations, it is recommended that all SCSI components be connected individually to the SCSI bus.

One Tape Drive, Single-Host System

Figure 2-10 shows a typical SCSI cable configuration for a library with one tape drive (Drive 1) connected to a single host. A blank plate cover the extra drive slot.

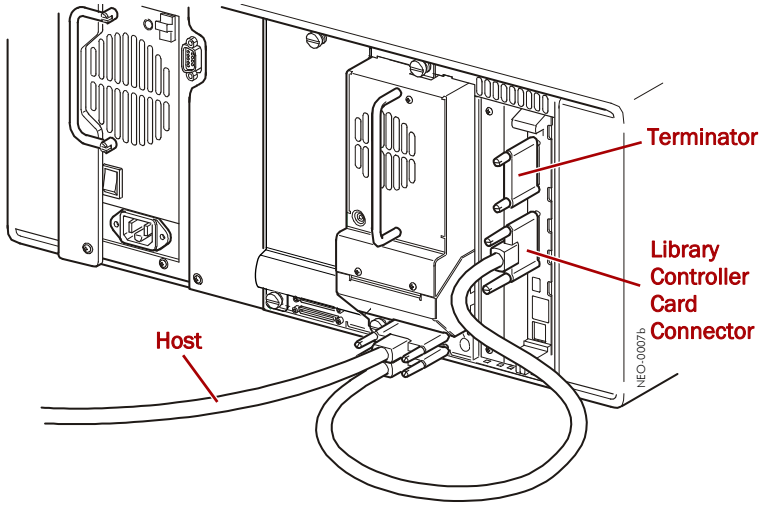


Figure 2-10: One Tape Drive, Single Host

Two Tape Drives, Single-Host System

IMPORTANT: The Two Drives, Single Host configuration is only recommended if you are using two older LTO-2 tape drives.

Figure 2-11 on page 2-9 shows a typical SCSI cable configuration for a library with two LTO-2 tape drives connected to a single host.

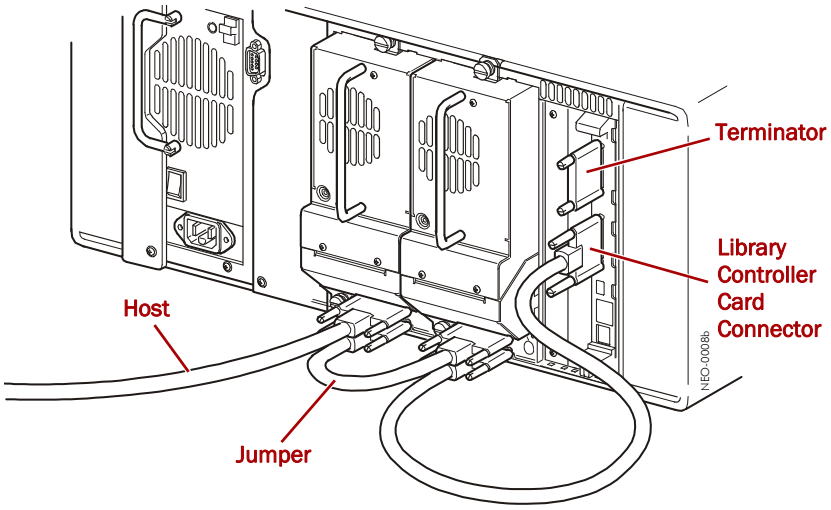


Figure 2-11: Two Tape Drives, Single Host

Two Tape Drives, Dual-Host System

Figure 2-12 shows a typical SCSI cable configuration for a library with two tape drives connected to a two different bus adapters or hosts.

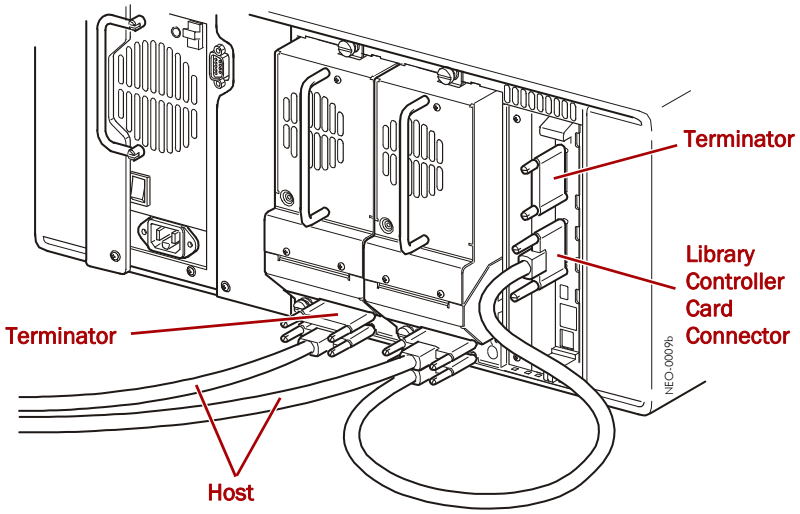


Figure 2-12: Two Tape Drives, Dual Hosts

Using SCSI Drives in an FC Network

It is possible to connect a NEO SERIES library with SCSI drives to an FC network using an FCO3 V.I.A. card as shown in this wiring diagram Figure 2-13:

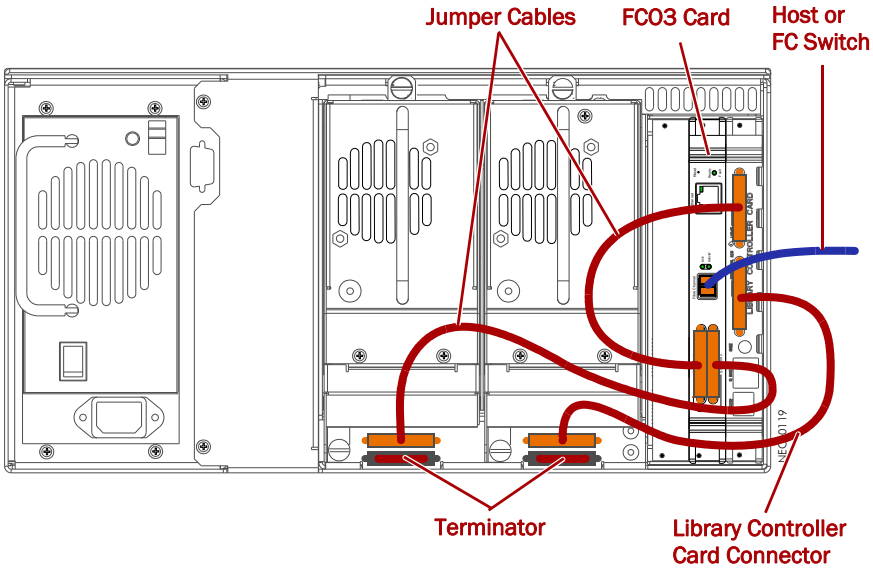


Figure 2-13: SCSI Drive Library on an FC Network

NOTE: For optimum performance, it is recommended that only two SCSI drives be connected to each FCO3 card, one per SCSI bus.

FC Cable Connections

When using FC drives on an FC network, slightly different cabling is required (Figure 2-14). In this case, the FC drives connect directly to the FC switch while the NEO SERIES library is connected to the switch via an FCO3 card.

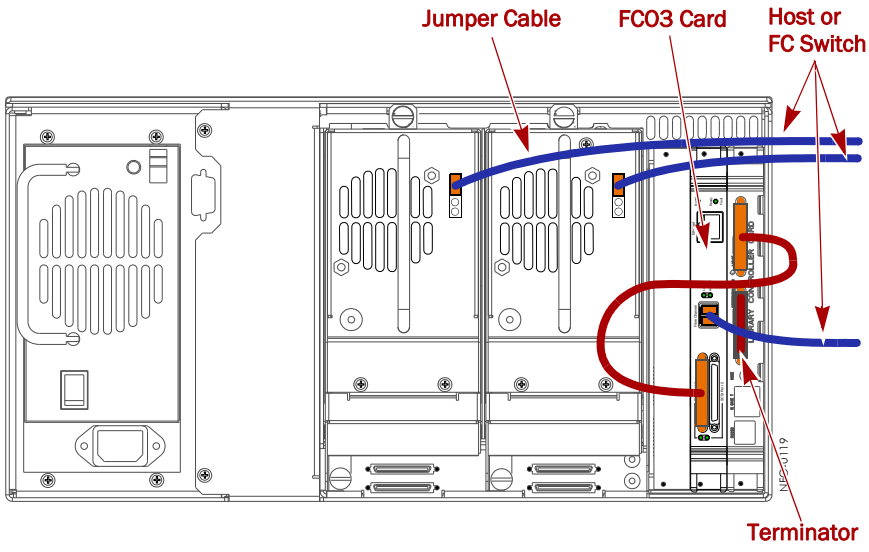


Figure 2-14: Typical Fibre Channel Network with Two SCSI Drives

Powering Up a NEO Library

Use the following instructions to apply power to your library module:

1. Connect the supplied **power cords** to AC receptacles located on the back of the library module (Figure 2-15).

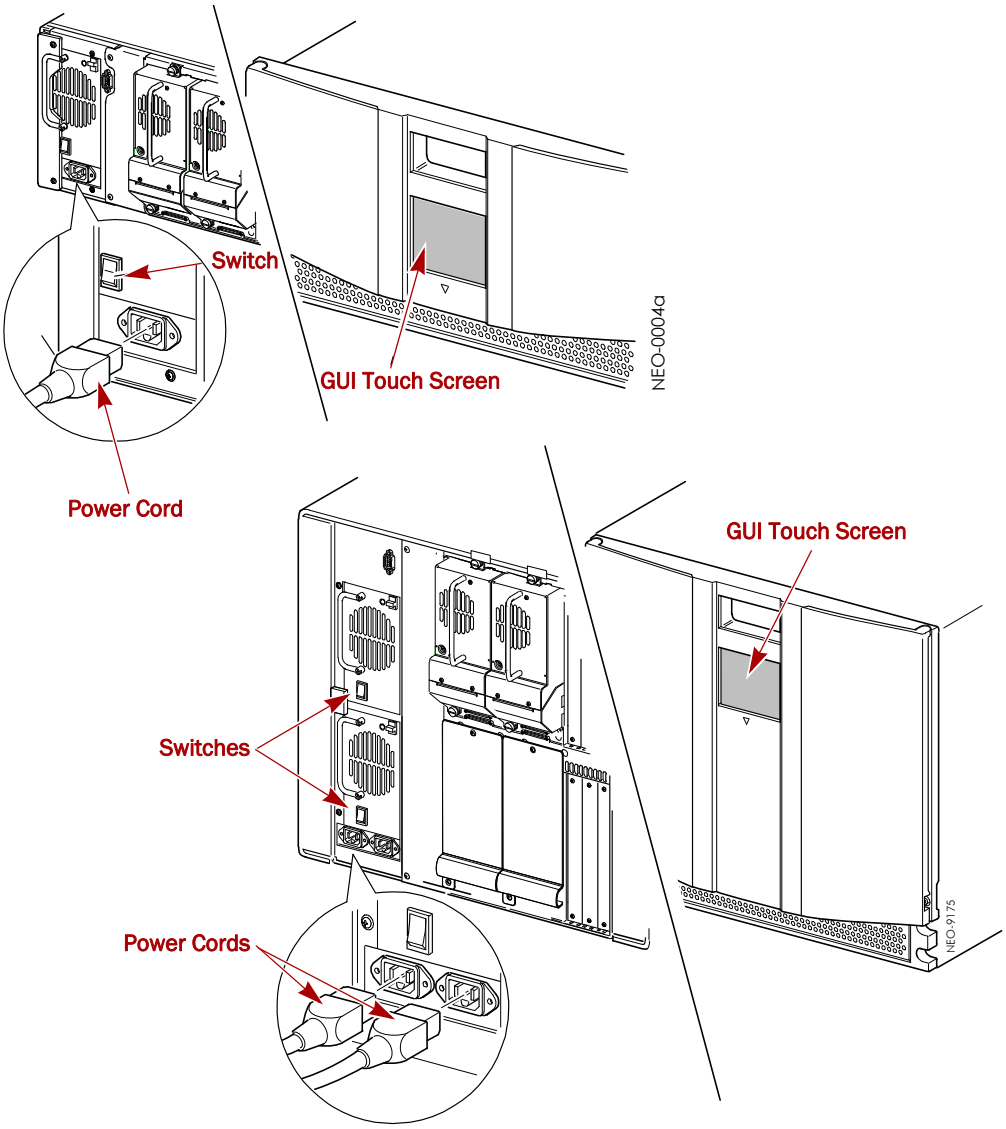


Figure 2-15: Powering Up NEO SERIES Library Module

2. Toggle the power **switches** to the ON position ("|").
3. Touch the **GUI touch screen** to activate the display and turn the library module ON.

CHAPTER 3

Basic Configuration

This chapter explains how to initially configure a NEO SERIES library.

For most applications you do not have to change the factory default settings; however, if you do need to change a configuration setting, use the instructions provided in the following sections. If you are uncertain whether you need to change a setting, contact your authorized service provider.

Configuration settings that are commonly modified include:

- Changing the default SCSI IDs
- Setting up your network
- Setting up alerts and notifications
- Creating Reserved Slots

Configuration settings are modified utilizing the Graphical User Interface (GIU) touch screen on the front of the library. For a complete description of the GUI touch screen operations see Chapter 5, "Graphical User Interface Usage."

SCSI ID Settings

Based on your SCSI bus configuration, it may be necessary to change the **SCSI IDs** of your drives:

1. From the GUI Default screen (Figure 3-1), press **Menu**.

Figure 3-1: Default NEO 2000 GUI Screen

2. In the Edit Options area (Figure 3-2), press **SCSI/FC**.

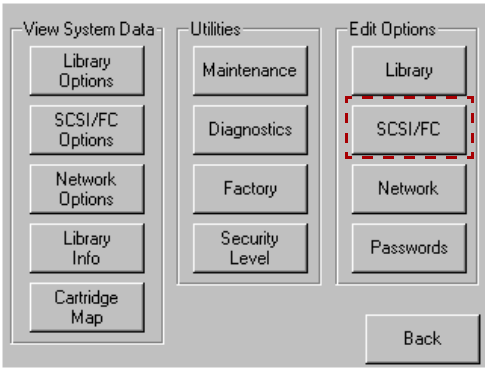


Figure 3-2: SCSI Initial Screen (Edit Options)

NOTE: If a Service password is enabled, the validate password screen is displayed. Enter the correct password and press Validate.

3. At the SCSI screen (Figure 3-3), press the virtual **button** to the right of the tape drive you are changing.

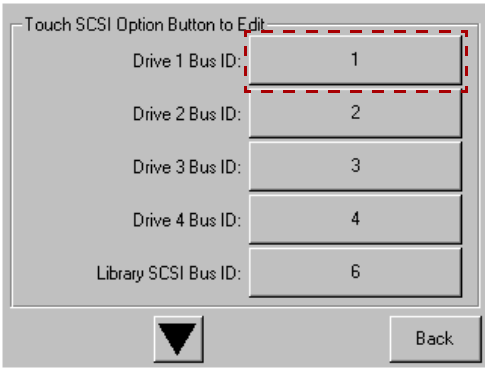


Figure 3-3: SCSI Initial Screen (Edit Options)

4. At the Bus ID edit screen (Figure 3-4), press one of the **SCSI ID number** buttons for the new ID and press Save.

NOTE: Bus ID number 7 is usually reserved for the Host Bus Adapter (HBA).

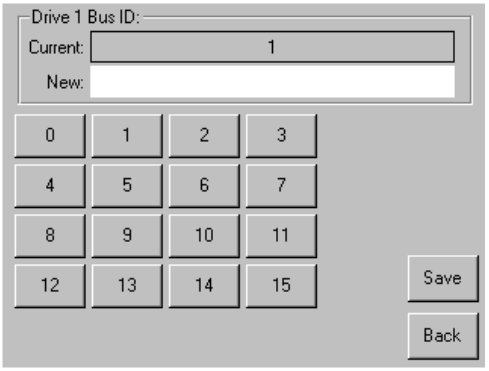


Figure 3-4: Bus ID Edit Screen

5. At the Confirm dialog box (Figure 3-5), press either **OK** to accept (or Cancel to discard).

Figure 3-5: Bus ID Confirmation Dialog Box

NOTE: If you entered a ID number that is already assigned within the NEO library, you are prompted to accept or cancel the duplication. Numbers outside the library are not checked such as Bus ID 7 for the HBA.

The newly selected SCSI ID flashes for a few seconds while the drive is being updated, then stops indicating that the operation is complete.

6. Repeat Steps 2–5 for the other drives.
7. Press **Back twice** to return to the Default screen.

Remote Access

The NEO 2000 and NEO 4000 libraries come preconfigured with DHCP. To remotely access the unit for additional configuration, open your browser using that address assigned to the library. This automatically launches WebTLC. For more information, see Chapter 6, "WebTLC Usage."

Configure E-Mail Communications

Before options that send e-mails can be used, the network settings must be configured and a SMTP Server address entered.

SMTP Server Configuration

1. From a computer connected to the same network as the NEO library, open a browser and connect to the **WebTLC IP address**.
2. At the Login screen, enter the default **password** "2" and click **Login**.
3. Click **Setup** in the Button Bar.
4. Click **Notifications** (clicking **Confirm** at the going offline message).

5. In the **E-Mail Addresses** section (Figure 3-6), enter data for your network:

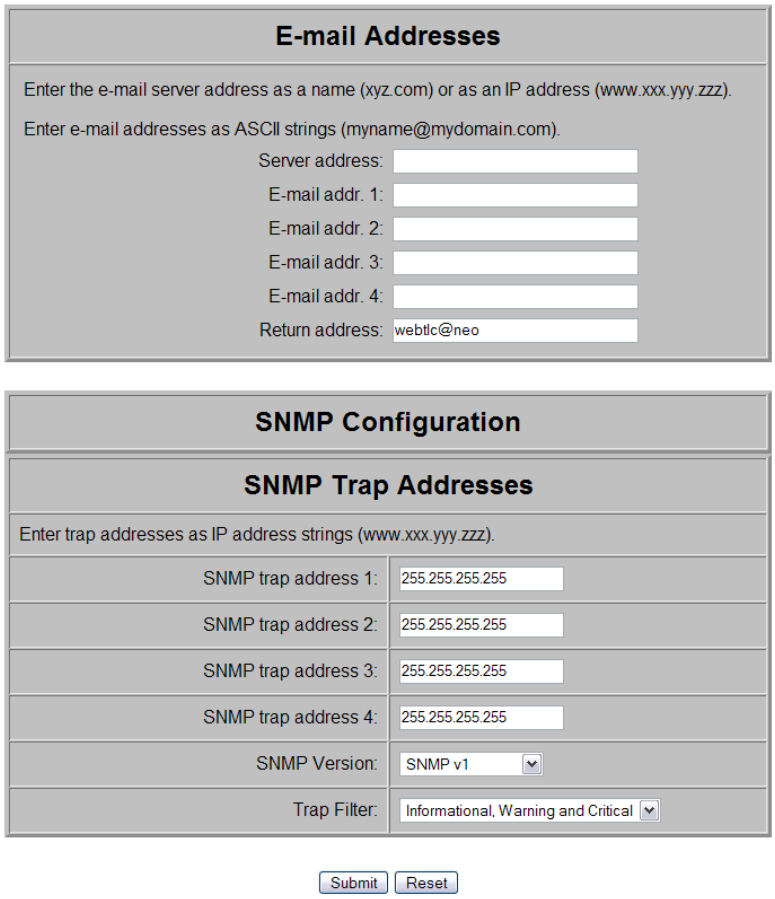


Figure 3-6: Notifications Configuration Screen

   a. Enter the **Server Address**.

   b. Enter up to **four addresses** to receive e-mail event messages.

   c. Change the default e-mail address that is to be used as the return address (**Return Address**) for the event messages to a real address.

      The Return Address is used to receive e-mail responses from Overland Support.

6. Click **Submit**.

   The information is updated immediately.

7. Click **Logout**.

Network Configuration

1. Verify with your network administrator what **type of IP address** your NEO library should be using.

   If it is a static IP address, obtain the actual library IP, subnet mask, gateway, and DNS server addresses.

2. At the GUI touch screen, press **Menu > Network (Edit Options)**.

3. At the **Network** configuration screen (Figure 3-7), do one of the following:

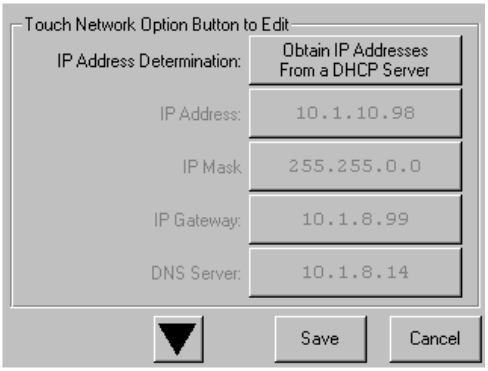


Figure 3-7: Network Initial Screen (Edit Options)

- To automatically obtain an IP address from a DHCP server (default setting), verify **Obtain IP Address From a DHCP Server** is selected.
- To use a specific static IP address, click the button next to **IP Address Determination**, click **User Specific IP Address**, and click **OK**.

4. If using a static IP address, use **these buttons** to configure it:
   - IP Address
   - IP Mask
   - IP Gateway
   - DNS Server
5. Click **Save**.

Setting up Reserved Slots

Use this option to remove some tape cartridge slots from storage use. This is necessary if one or more tape cartridge slot is being dedicated as a cleaning slot or if your software license limits you to a number of slots less than the total available in your NEO library.

How Reserved Slots are Numbered

Standard tape cartridge slots are numbered from the front of the magazine to the rear, see Figure 3-8 on page 3-6 and Figure 3-9 on page 3-6. If you reserve one slot, it becomes Reserved Slot #1 in the last slot of the magazine. Additional reserved slots continue in this rear-to-front pattern. If your software license limits you to less than the full magazine capacity, Reserved Slot #1 always follows the last unreserved data tape cartridge.

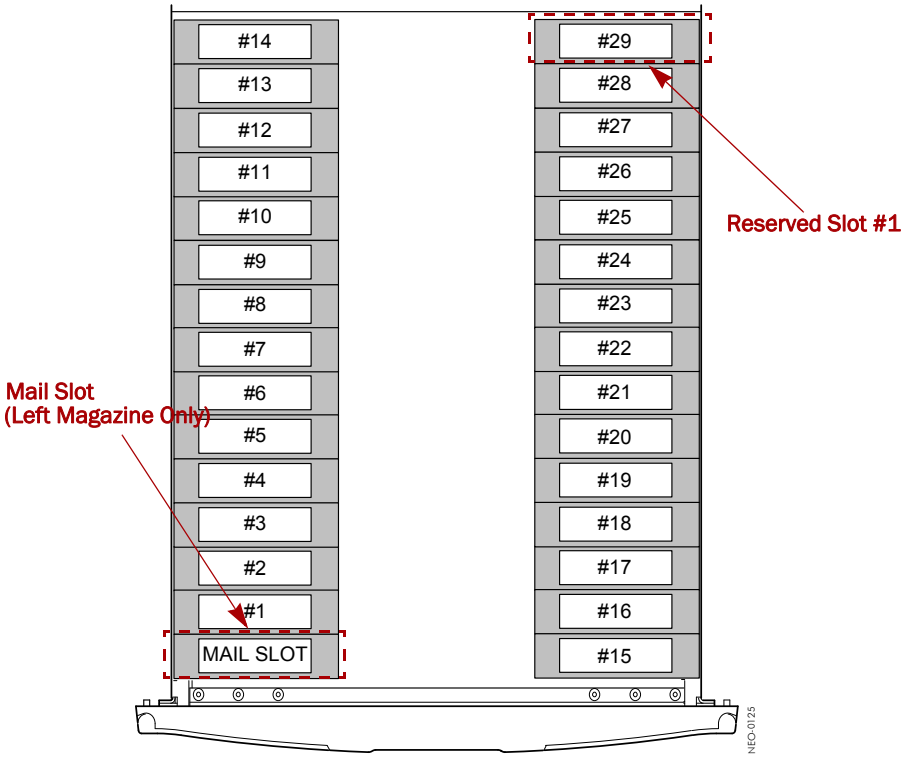


Figure 3-8: NEO 2000 Magazine Slot Numbering

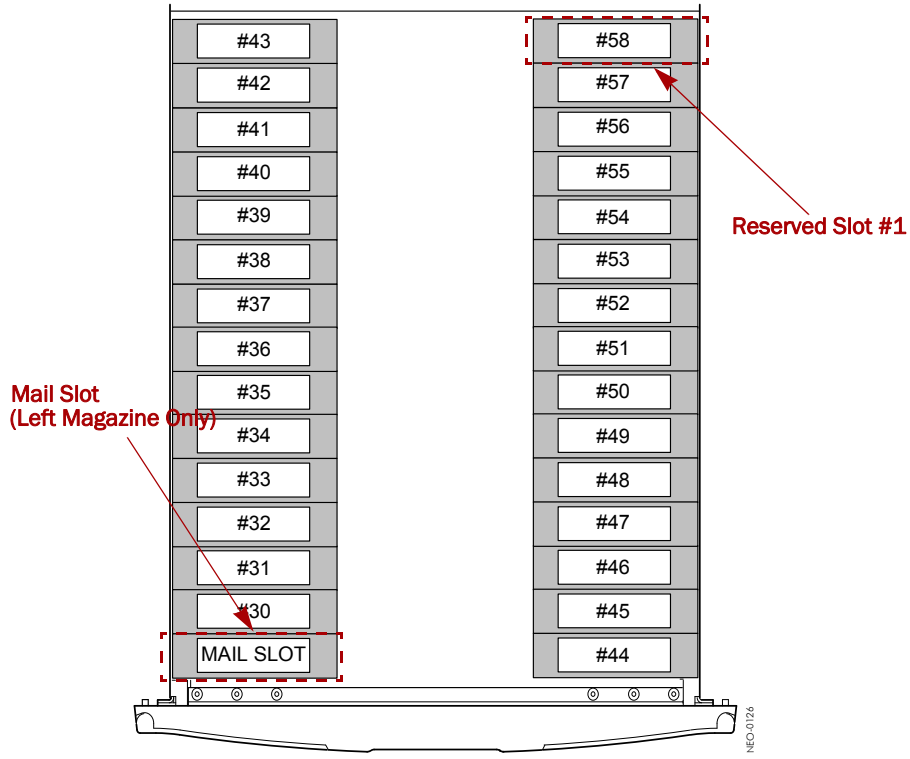


Figure 3-9: NEO 4000 Lower Magazines Slot Numbering

To reserve a slot:

1. From the Menu screen, touch the **Library** option in the Edit Options area.
2. On the Library options screen, press the Total Reserved Slots button (Figure 3-10).

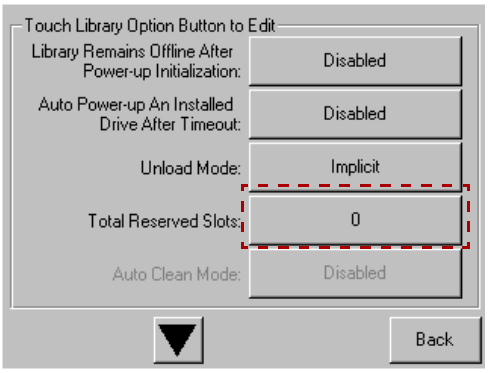


Figure 3-10: Total Reserved Slots Screen

3. Use the keypad to enter the number of slots (Figure 3-11) you want to reserve, and press **Save**.

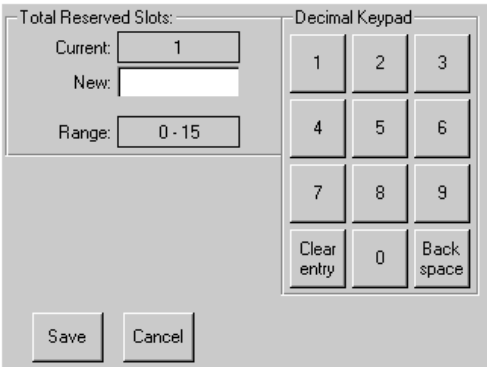


Figure 3-11: Reserved Slots Numeric Keypad

4. At the confirmation screen Figure 3-12, press **OK**.

Figure 3-12: Total Reserved Slots Confirmation Screen

The library reboots automatically to activate the Reserved Slots.

CHAPTER 4

Daily Operations

This chapter covers some of the operations and configuration changes to the NEO libraries that occur during everyday use.

Common Configuration Modifications

The library provides several configuration options to support a variety of applications and platforms. The settings for each of the available options are stored in non-volatile memory in the library.

For most applications, you do not have to change the factory default settings; however, if you do need to change the configuration, use the instructions provided in the following sections. If you are uncertain whether you need to change a setting, contact your authorized service provider.

For detailed information about the GUI touch screen and its options, refer to Chapter 5, "Graphical User Interface Usage."

Setting a SCSI ID

Each SCSI tape drive installed in the library requires a unique SCSI ID. The information provided in this section instructs you on how to change a default SCSI ID.

1. From the GUI Default screen, press **Menu > SCSI/FC** (Edit options).

   NOTE: If a Service password is enabled, the validate password screen is displayed. Enter the correct password and press Validate.

2. At the SCSI screen, press the virtual **button** to the right of the new tape drive.

3. At the Bus ID edit screen (Figure 4-1), press one of the **SCSI ID number** buttons for the new ID and press **Save**.

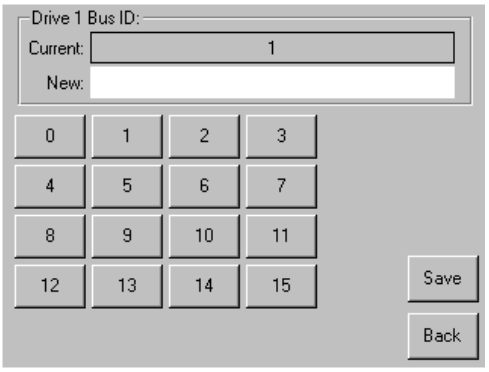


Figure 4-1: Bus ID Edit Screen

4. At the Confirm dialog box, press either **OK** to accept (or Cancel to discard).

   NOTE: If you entered a ID number that is already assigned, you are prompted to accept or cancel the duplication.

   The newly selected SCSI ID flashes for a few seconds while the drive is being updated, then stops indicating that the operation is complete.

5. Press **Back twice** to return to the Default screen.

Configuring a Fibre Channel Drive

In most cases, you can use the default configuration values for Fibre Channel drives. However, if it becomes necessary to change the default values, these values are editable:

- Port *n* Control
- Port *n* Loop ID
- World Wide Port *n* Name
- World Wide Node Name
- Topology
- Speed
- Directory Registration

Table 5-6 on page 5-22 details all the different FC settings available.

CAUTION: To support the different versions of LTO FC drives, the library firmware must be at least at these levels:

- LTO-2 or LTO-3 Fibre Channel Drive – Version 5.18 or higher
- LTO-4 Fibre Channel Drive – Version 6.02 or higher

Verify the firmware level of your library by selecting **Menu > Library Info** from the Default screen. If it needs to be upgraded, visit the Overland Storage Technical Support website for the latest versions of the firmware. For information about downloading firmware, see "Downloading Firmware Updates" on page iii.

1. From the Default screen of the GUI, press **Menu > SCSI/FC** (Edit options).

   NOTE: If a Service password is enabled, the validate password screen is displayed. Enter the correct password and press Validate.

2. At the FC edit screen (Figure 4-2), press the **Set Values** button to the right of the tape drive you are changing.

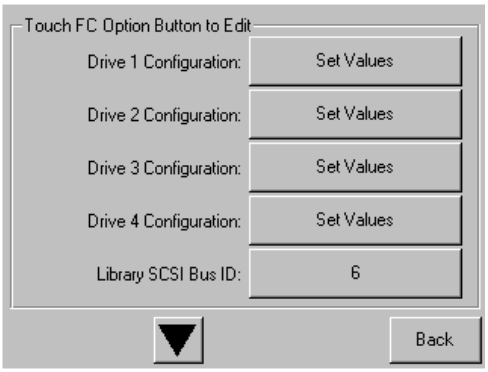


Figure 4-2: FC Initial Screen (Edit Options)

3. At the Set Values edit screen (Figure 4-3), make all the necessary changes by pressing the appropriate buttons and entering the new data. Use the down arrow key (▼) to access the second screen.

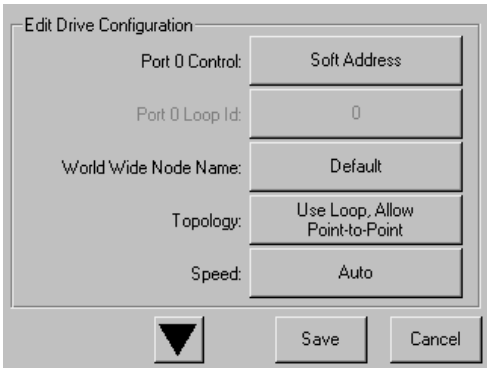


Figure 4-3: Edit FC Drive Configuration (Set Values) Screen

4. Press **Save**.

   A dialog box appears stating the configuration is being updated, and then you are automatically returned to the FC edit screen.

5. Press **Back twice** to return to the Default screen.

Media Handling

The tape cartridge media is the focus for most of the daily operations of a NEO libraries. A NEO 2000 library manages up to 30 LTO cartridges or 26 SDLT cartridges including any cleaning cartridges. A NEO 4000 manages twice that many.

Bar Code Labels

The graphic below (Figure 4-4) shows you how to install a bar code label on either a LTO or SDLT tape cartridge.

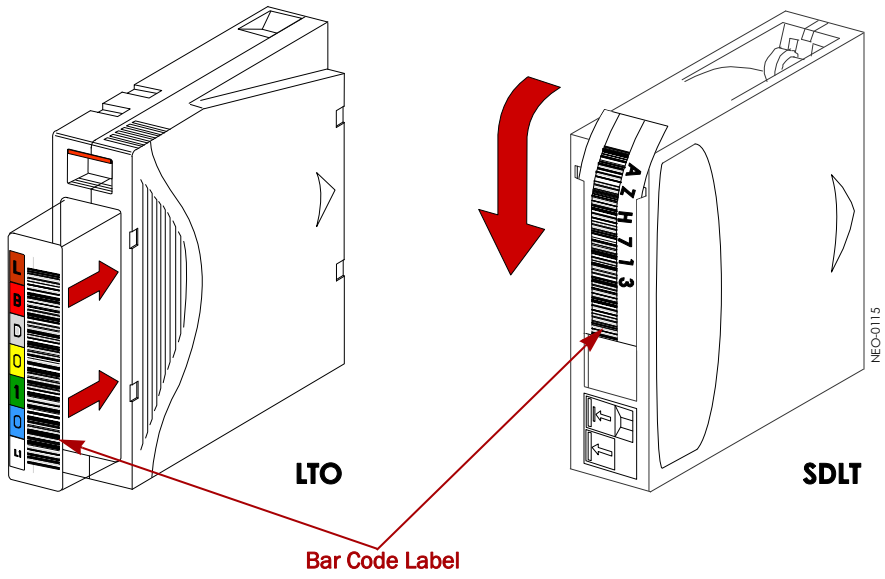


Figure 4-4: Bar Code Label Installation

IMPORTANT: Only Overland Storage bar code labels are supported with the library. To order additional labels, contact your authorized Overland Storage reseller.

LTO Cartridge Media

The following tips ensure maximum LTO cartridge media performance and life:

- For best results use Overland Storage media and bar code labels.
- Place labels only in the recessed area, just below the write protection switch.

  Never place labels on the top, bottom sides or rear of the cartridge—they can cause loader faults and interfere with normal operations. Labels placed in such locations can come off inside the equipment causing damage.
- Always inspect cartridges for incorrect or improperly attached labels.
- Never erase information on a cartridge label—always replace the label.

SDLT Cartridge Media

The following tips ensure maximum SDLT cartridge media performance and life:

- For best results use Overland Storage media and bar code labels.
- Place labels only in the recessed area, just above the write protection switch.

  Never place labels on the top, bottom sides or rear of the cartridge—they can cause loader faults and interfere with normal operations. Labels placed in such locations can come off inside the equipment causing damage.
- Always inspect cartridges for incorrect or improperly attached labels.
- Never erase information on a cartridge label—always replace the label.

Magazines

> **CAUTION:** Always keep a loaded magazine level. Tilting the magazine can result in the tapes falling out. When removing a magazine, pull it straight out without twisting or pulling sideways. Also, do not hold a magazine by only the handle; place your other hand under the center of the magazine for added support.

There are two media magazines in the NEO 2000 library and four magazines in the NEO 4000. Each magazine holds up to 15 LTO cartridges or 13 SDLT cartridges. The magazines are removed through the front (Figure 4-5).

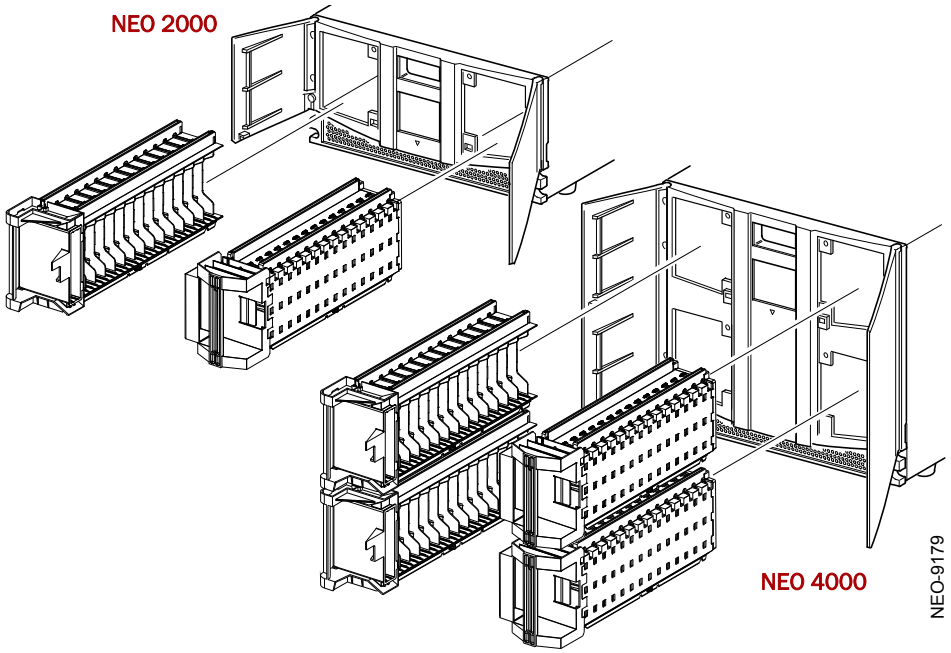


Figure 4-5: NEO Media Magazines

Using a Mail Slot

The NEO libraries feature Mail Slots that allow you to import or export cartridges without interrupting library operation. Each Mail Slot (Figure 4-6) holds one cartridge and is located at the front of the left magazines.

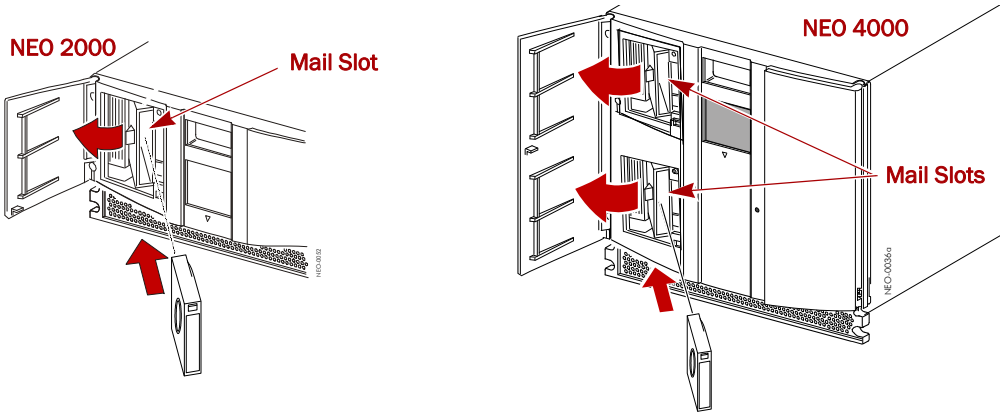


Figure 4-6: Mail Slot Locations

Insert tape cartridges so that the bar code labels are facing outward and the tape hub is toward the left. Handle and store tape cartridges in a clean, dust-free environment.

NEO 2000 Mail Slot

Follow these steps to add or remove tape cartridges using the NEO 2000 Mail Slot:

1. At the GUI screen, press **Mail Slot Access**.
   This automatically unlocks the Mail Slot.
2. When you hear the door latch release, open the **left door**.
3. Using the Mail Slot handle, open the slot, insert or remove the **tape cartridge**, and close the slot.
4. Close the door.
5. This automatically locks and reinventories the Mail Slot.
6. Use the **Move Media** option to move the tape.

NEO 4000 Mail Slot

Follow these steps to add or remove tape cartridges using NEO 4000 Mail Slots:

1. At the GUI screen, press **Mail Slot Access**.
2. Press a **Mail Slot *n*** button to unlock that Mail Slot and open the door.
3. If desired, press the **other Mail Slot** button to unlock both.
4. Using the Mail Slot handle, open the slot, insert or remove the **tape cartridge**, and close the slot. If necessary, repeat for the other Mail Slot.
5. Close the door.
6. This automatically locks and reinventories the Mail Slots.
7. Use the **Move Media** option to move the tapes.

Using Media Magazines for Bulk Exchanges

If you need to add or remove a large number of tape cartridges, it is usually easier to stop the library and open the media magazines.

CAUTION: To prevent unnecessary stress on the magazine, keep the magazine level and straight as it is removed. Do not twist or pull toward any side.

1. Press **Magazine Access**.
   This takes the library offline. Wait for the robotics to come to a stop.
2. Press either a **specific magazine button** or unlock **Both/All**.
3. Open the media access **doors**.
4. Unload a **magazine**.
   a. Holding your thumb against the library chassis, pull slightly with your fingers to release the magazine pressure catch.

b. Gently pull the **magazine** straight out of the library with one hand underneath to help support it.

c. Add or remove the **media**.

d. Slide the **magazine** all the way back into the library.

5. Repeat Step 4 for any other magazines.
6. Close the media access **doors**.
   They automatically relock and the library comes back online.
7. Press **Back** to update the library and return to the Default screen.

IMPORTANT: If using the magazine for storage, be sure to adequately secure and package the magazine to protect the media during transit.

Moving Media Inside the Library

The Move Media command provides the means to manually move cartridges around the inside of the library without physically touching them.

NOTE: When selecting the Source or Destination locations, you can repeatedly press the **Element Type button** to cycle through all the available choices. You can also use the Decimal Keypad to enter the choice number directly into the field.

1. At the GUI screen, press **Move Media**.
2. Press the Source field, select the location of the tape being moved as the **Source Element Type**, and enter its slot number.
3. Press the Destination field, select a destination for the tape as the **Destination Element Type**, and enter the destination slot number.
4. Press **Execute Move.**
   Wait for the tape to be moved. You are automatically returned to the Default menu when done.

CHAPTER 5

Graphical User Interface Usage

The Graphical User Interface (GUI) touch screen on the front of the NEO 2000 or NEO 4000 library (Figure 5-1) provides an easy way to directly communicate with it.

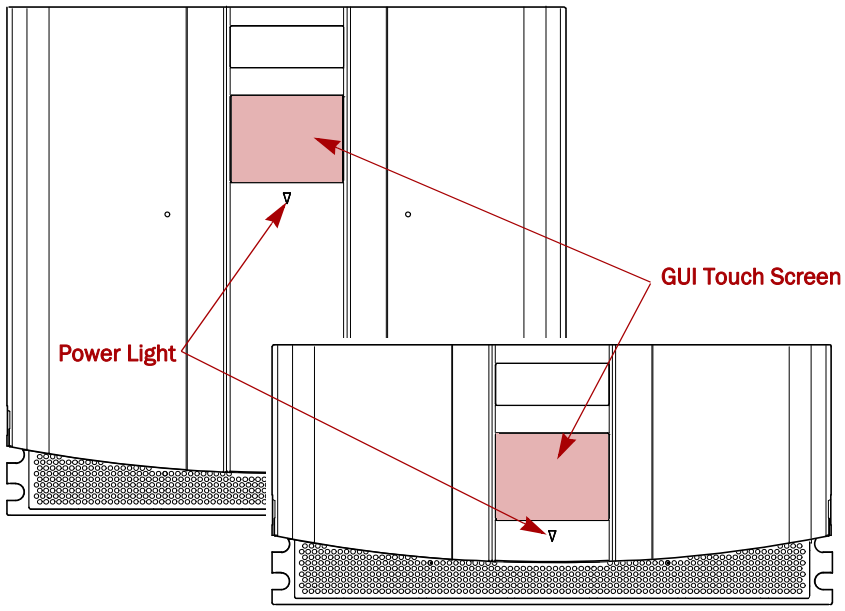


Figure 5-1: GUI Touch Screen Locations

By gently pressing the virtual buttons, you can select menus and options to view or change library settings.

NOTE: Refer to Chapter 6, "WebTLC Usage"or Chapter 7, "NeoCenter Usage" for other ways to communicate with and configure the library.

Overview

The GUI is a 3.75" x 2.875" (9.5cm x 7.3cm) pressure-sensitive grayscale screen. It provides text and graphic messages and, through the use of virtual buttons and sliders, allows users to make changes to current library settings.

Some features are comprised of multiple screens. To move between these screens, use the up (▲) or down (▼) arrows. The Back button returns you to the previous screen.

For most applications, you do not have to change the factory default settings. If changes are needed, use the instructions provided in the following sections. If you are uncertain whether you need to change a setting, contact your authorized service provider.

Default Screen

The Default screen appears 50 seconds after POST diagnostics begins or when the Continue button is pressed (Figure 5-2).

Figure 5-2: Library Default Screen (NEO 4000)

NOTE: Though visible, this screen is not fully functional until POST completes. During POST, you can only access the Menu functions Network Options and Library Info in the View System Data area.

From this screen you can access all options, functions, informational screens, and screen contrast adjustments of the NEO library. You can also initiate a controlled library shutdown. Tapping the logo area turns on the internal light for 30 seconds.

Password Protection

To avoid accidental interruption of library operation, the NEO library lets you assign up to three "levels" of security using passwords. A fourth level of security is built-in for factory technicians. This table shows the different levels and their scopes of access:

Table 5-1: NEO library User Security Levels

Security Level	Access Description
User Level 1	Controls access to the Mail Slot Access button.
User Level 2	Controls access to the Power, Online/Offline, Drawer Access, and Move Media buttons.
Service (Level 3)	Controls access to the Utilities and Edit Options area buttons.

Table 5-1: NEO library User Security Levels

Security Level	Access Description
Factory (Level 4)	Reserved – no customer use.
NOTE: Each "level" controls only specific buttons. For example, adding a Level 1 password does NOT protect Level 2 or 3 option buttons. However, higher levels allow access to lower levels, such as Level 2 can access the Mail Slot.	

The passwords for Levels 1–3 are managed using the Passwords button in the Edit Options area of the Menu. Once enabled, you are always prompted for a password whenever its associated buttons are pressed. This is especially true when trying to access or move media. When you return to the Default screen, all password access is cleared and you must reenter the password for new access. Passwords can also be validated by using the Security Level button in the Utilities area.

For more information, see "Passwords Button (Edit Options)" on page 5-24.

Host Lock Out

Media can be manually locked by the software running on the host. The library provides no GUI touch screen override for this command. Exiting the host software also locks media access.

NOTE: If in a locked status, media access can be restored by cycling the library power.

Default Screen Options

The Default menu screen (Figure 5-3) consists of 10 buttons surrounding a logo splash screen. The buttons provide links to the other key functions (Table 5-2).

Figure 5-3: Library Default Screen (NEO 2000)

Table 5-2: Options Available from the Default Screen

Virtual Button	Result
Menu	Shows the Menu screen.
Online / Offline	Switches the library between online and offline.
Status	Displays the Library Status screen.

Table 5-2: Options Available from the Default Screen

Virtual Button	Result
Power	Starts a controlled power down process.
Mail Slot Access	Takes you to the Mail Slot Access screen.
Magazine Access	Shows the Magazine Access screen.
Move Media	Takes you to the Move Media screen.
"O" Logo	Displays the Technical Support screen.
Up & Down Arrows	Adjusts the contrast of the screen.

Menu Button

This button displays the Menu screen (Figure 5-4) that provides links to most of the options for the library.

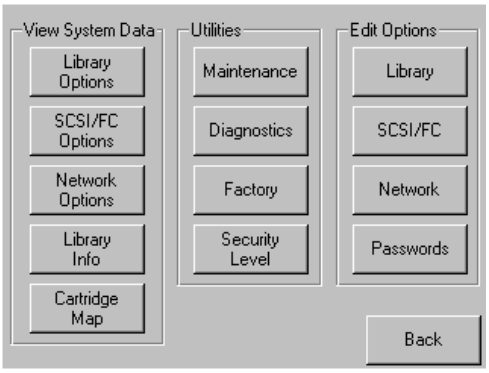


Figure 5-4: Menu Screen

Refer to "Menu Screen Options" on page 5-9 for complete details.

Online / Offline Button

Pressing this button switches the library between online and offline status. The button name shows the current status of the library. It can be password protected using Security Level 2.

NOTE: By default, the library automatically is brought online after powering it up. When offline, the front panel Status LED blinks.

The tape drives continue to function and record without interruption. However, any attempt to operate the robotics will result in a "Not Ready" message to the host.

Status Button

Selecting this option displays the library Status screen (Figure 5-5 on page 5-5).

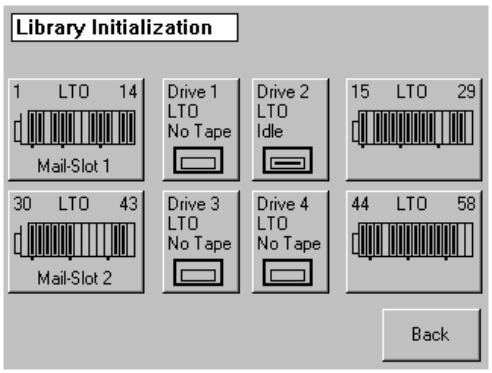


Figure 5-5: Status Screen (NEO 4000)

The Status screen displays buttons to access tape drive and media information. These buttons show some of the following information:

- (Tape) Drive buttons
  - Active drives
  - Drive type
  - Physical drive status
- Mail Slots and (Media) Drawer buttons
  - Configuration
  - Cartridge load

Pressing the appropriate button displays a detailed status screen (Figure 5-6).

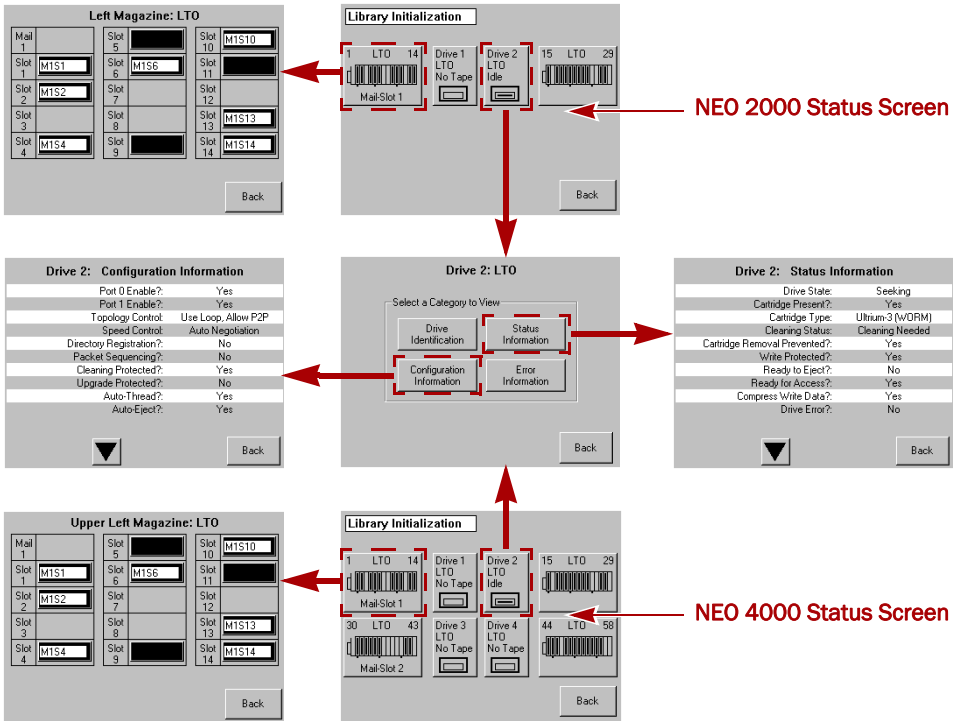


Figure 5-6: Status Screen Examples

NOTE: The **Drive n: Status Information** detail screen varies depending on whether LTO or SDLT drives are installed.

Power Button

The Power button initiates a controlled power-down sequence that provides enough time to park the robotics assembly and shuttle. During the process, you are prompted to either confirm or cancel the shut down (Figure 5-7). It can be password protected using Security Level 2.

Figure 5-7: Power Down Confirmation Dialog Box

Mail Slot Access Button

Pressing this button displays the Mail Slot Access screen. This screen lets you gain Mail Slot access without taking the library offline. It can be password protected using Security Level 1.

NEO 2000

The left door is automatically unlatched when this screen is accessed. The screen icon shows the slot unlocked (Figure 5-8).

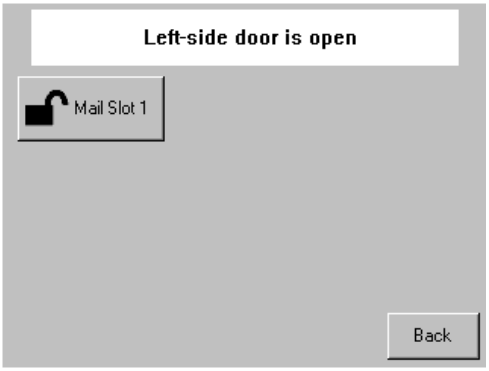


Figure 5-8: NEO 2000 Mail Slot Access Screen

Closing the library door relocks the Mail Slot, returns you to the Default screen, and flashes the power light while the Mail Slot is inventoried.

NEO 4000

Initially accessing this screen causes no physical change to the library. When either Mail Slot button is pressed, the left door is automatically unlatched along with that particular Mail Slot (Figure 5-9 on page 5-7). Pressing the other button unlocks the second Mail Slot.

NOTE: A mechanical lock holds each Mail Slot closed until its button is pressed.

Closing the library door relocks the Mail Slots, returns you to the Default screen, and flashes the Status LED while the Mail Slots are inventoried.

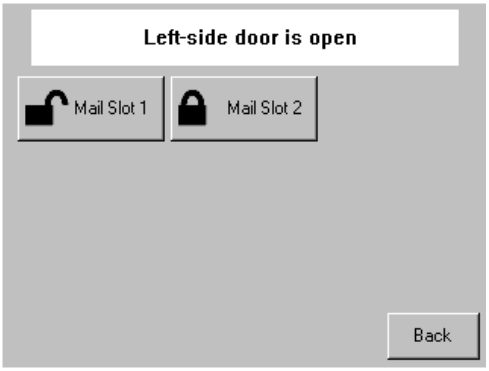
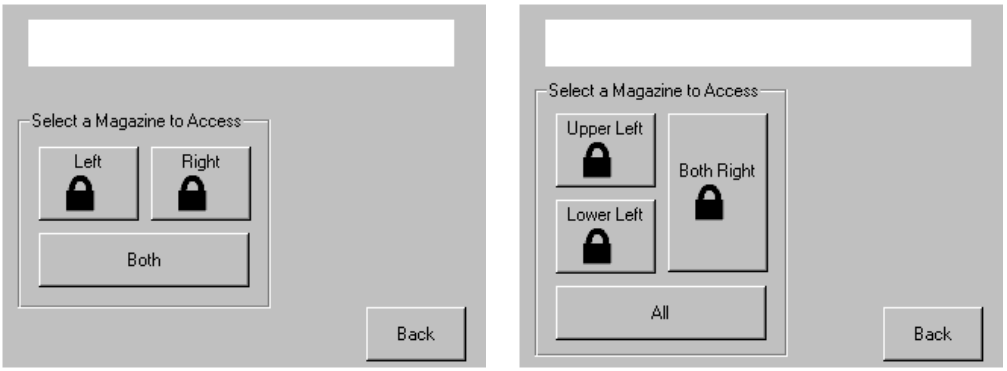


Figure 5-9: NEO 4000 Mail Slot Access Screen

Magazine Access Button

Pressing this button displays the Magazine Access screen (Figure 5-10) that lets you deactivate the solenoid locks that secures each magazine so they can be removed. It can be password protected using Security Level 2.



NEO 2000 NEO 4000

Figure 5-10: Magazine Access Screens

Access is gained by pressing either a specific magazine button or the Both/All option. The appropriate door automatically opens, and if it is a left magazine, the appropriate magazine is unlocked.

Closing the library door relocks the magazines, returns you to the Default screen, and flashes the Status LED while the Mail Slots are inventoried.

Move Media Button

Selecting this option displays the Move Media screen (Figure 5-11 on page 5-8). This screen lets you load or remove a cartridge from a tape drive or move cartridges within the library. It can be password protected using Security Level 2.

NOTE: You can cancel the move process at any time by pressing the Back button (which returns you to the Default screen). When moving media, if a slot number is grayed out, that slot is not available. Clear your entry and enter a different slot number.

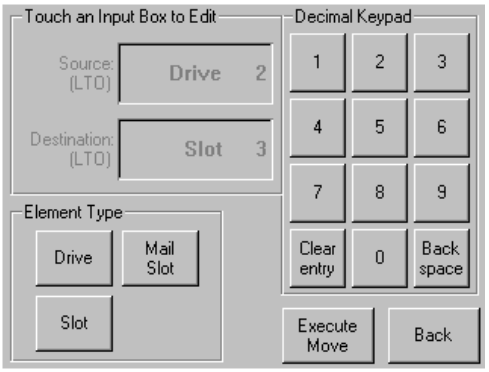


Figure 5-11: Move Media Screen

To move a cartridge:

1. Touch the **Source** input box to activate it.
2. Select the **Source Element Type** by pressing the appropriate button.
3. Enter the **element number** using the Decimal Keypad

   You can also repeatedly press the appropriate Source Element Type button to cycle through all possible options (i.e., elements with a tape in them).
4. Touch the **Destination** input box to activate it.
5. Select the **Destination Element Type** by pressing the appropriate button.
6. Enter the **element number** using the Decimal Keypad.

   You can also repeatedly press the appropriate Destination Element Type button to cycle through all possible options (i.e., empty elements).
7. Press **Execute Move**.

Upon completion, you are automatically returned to the Default screen.

Technical Support Button

Pressing the Overland logo in the top left corner of the Default screen displays Overland-specific technical support information (Figure 5-12).

Figure 5-12: Technical Support Screen

If you are having difficulty contacting your local service provider, contact Overland Storage directly. For further assistance, you can also access Overland's website at http://www.overlandstorage.com.

LCD Contrast Controls

Pressing the up and down arrows in the upper right corner of the Default screen temporarily increases or decreases the contrast of the LCD display. There are 31 incremental steps of contrast to choose from. To change the setting on a more permanent basis, use **Menu > Library > LCD Contrast Adjust**.

Menu Screen Options

Selecting Menu from the Default screen displays the (Option) Menu screen (Figure 5-13) of buttons to other features that let you view, configure, and edit various library configurations.

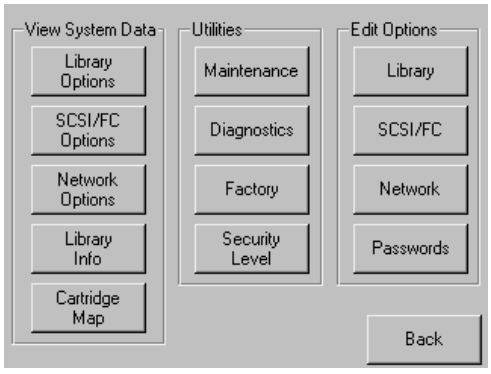


Figure 5-13: Menu Screen

CAUTION: If you press the Diagnostics, Factory, or any Edit Option section button, the library is automatically and immediately taken offline. Once the action is completed, the library automatically goes back online.

The screen is divided into three sections:

- View System Data—Library Options, SCSI/FC Options, Network Options, Library Info, and Cartridge Map
- Utilities—Maintenance, Diagnostics, Factory (access), and Security Level for authorized service technicians
- Edit Options—Library, SCSI/FC, Network, and Passwords

The Back button returns you to the Default screen.

IMPORTANT: The buttons in the Utilities section are designed for use by Overland-Authorized Service Technicians and, with few exceptions, are not recommended for access by end users.

Library Options Button (View System Data)

The Library Options button in the View System Data area provides read-only access to the library settings. Pressing this button displays several screens of information showing the different options (Figure 5-14).

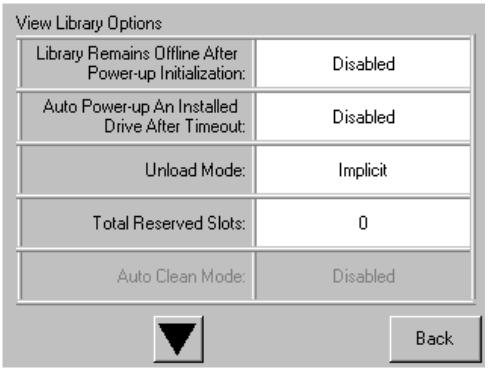


Figure 5-14: View Library Options Initial Screen (View System Data)

Use the ▲ or ▼ arrows to shift between screens. No modifications can be made on these screens. Refer to "Library Button (Edit Options)" on page 5-15 for information on changing these settings.

SCSI/FC Options Button (View System Data)

NOTE: The options displayed vary based on the type of drives installed in the library.

The SCSI/FC Options button in the View System Data area provides read-only access to the SCSI or FC drive settings. Pressing this button displays several screens of information showing the different options for the drives used in the library (Figure 5-15 on page 5-11 and Figure 5-16 on page 5-11).

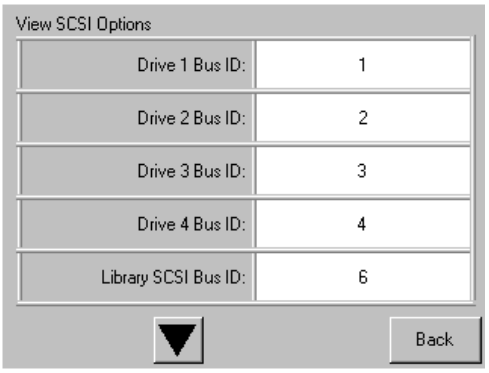


Figure 5-15: View SCSI Options Initial Screen (View System Data)

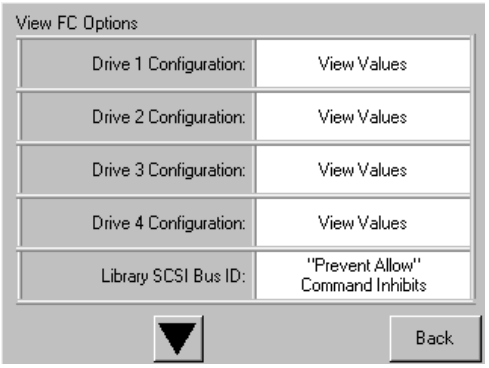


Figure 5-16: View FC Options Initial Screen (View System Data)

Use the ▲ or ▼ arrows to shift between screens. For FC drives, pressing the View Values field for a particular drive displays a second set of data screens. No modifications can be made on these screens. Refer to "SCSI/FC Button (Edit Options)" on page 5-18 for information on changing these settings.

Network Options Button (View System Data)

The Network Options button in the View System Data area provides read-only access to the network settings. Pressing this button displays three screens of information showing the 13 different options (Figure 5-17).

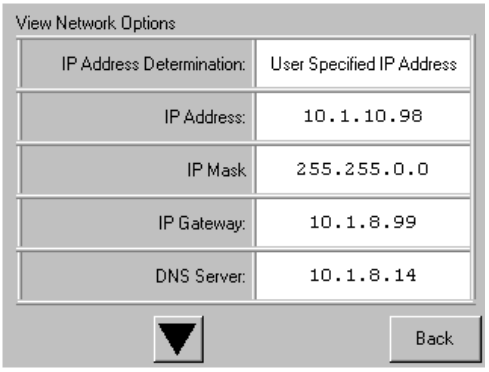


Figure 5-17: View Network Options Initial Screen (View System Data)

Use the ▲ or ▼ arrows to shift between screens. No modifications can be made on these screens. Refer to "Network Button (Edit Options)" on page 5-23 for information on changing these settings.

Library Info Button (View System Data)

The Library Info button in the View System Data area provides read-only access to the general information about the NEO library Library. Pressing this button displays a single screen of information (Figure 5-18).

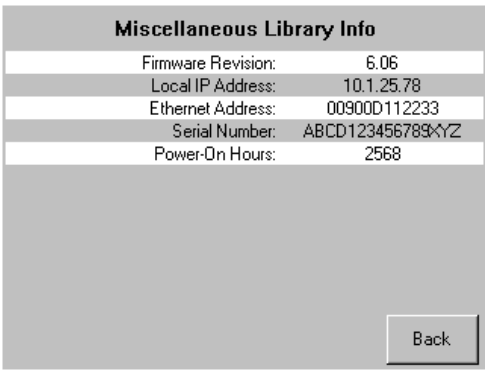


Figure 5-18: View Library Info Screen (View System Data)

This screen displays the library's firmware revision, current IP address, Ethernet address, library serial number, and number of power-on hours. No modifications can be made on this screen.

Cartridge Map Button (View System Data)

The Cartridge Map button in the View System Data area provides a visual indication of whether or not there is a cartridge present in all library drives and cartridge slots. If available, the corresponding bar code label is shown for the cartridge (Figure 5-19).

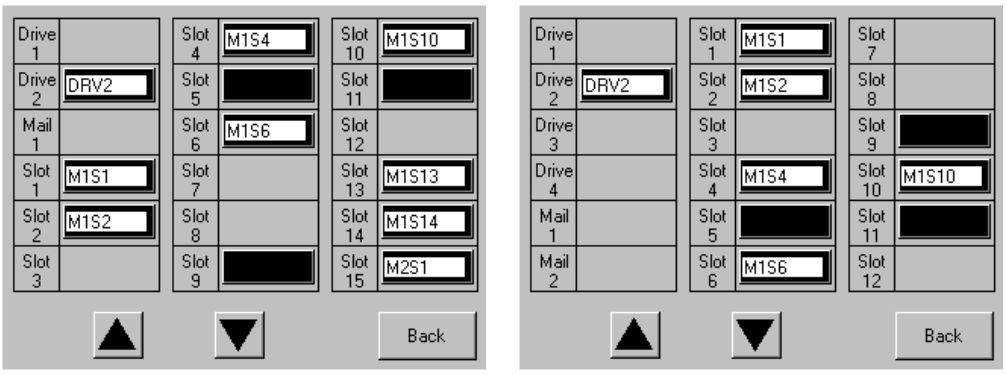


Figure 5-19: View Cartridge Map Initial Screen (View System Data)

Use the ▲ or ▼ arrows to shift between screens. The screens loop so you can go in either direction to more quickly find a particular slot. No modifications can be made on these screens. Refer to "Move Media Button" on page 5-7 for information on changing the location of a cartridge.

Maintenance Button (Utilities)

The Maintenance button in the Utilities area displays a submenu of buttons to address the general library service functions (Figure 5-20). The number and type of buttons varies depending on installed options and firmware version. Use the ▲ or ▼ arrows to shift between screens.

IMPORTANT: The Maintenance option is designed for use by Overland Authorized Service Technicians and, with the exception of Clean Drive, is not recommended for access by end users.

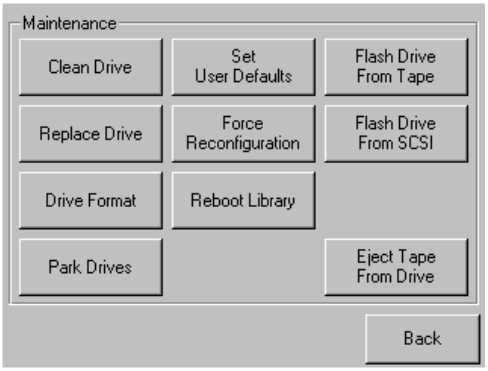


Figure 5-20: Maintenance Submenu Screen (Utilities)

CAUTION: When you press any Maintenance button other than Replace Drive, the library is automatically and immediately taken offline. Once the action is completed, the library automatically goes back online. The hot-swap feature allows the library to remain online while a drive is being replaced.

This table details the maintenance functions that can be accomplished using this submenu:

Table 5-3: Maintenance Submenu Button Functions

Option	Description
Clean Drive	Using a screen similar to the Move Media screen (Figure 5-11 on page 5-8), selected drives can be cleaned.
Replace Drive*	Presents a screen with buttons for each drive. Press a drive button to deactivate that drive for removal. If a tape is currently in the drive, you are prompted to move the tape to a different location.
Drive Format (SDLT only)	Sets the SDLT format type to allow writing to a tape in a format other than the native drive format.
Set User Defaults*	Resets user options back to the default values stored in non-volatile memory. The library immediately reboots upon completion.

Table 5-3: Maintenance Submenu Button Functions(Continued)

Option	Description
Force Reconfiguration*	Forces an immediate reconfiguration of the NEO library to the appropriate settings of Master, Slave, or Standalone. Used whenever a drive or library module is permanently removed. **NOTE:** NEO libraries automatically reconfigure themselves when a new drive or library module is added.
Reboot Library*	Forces an immediate reboot of the NEO library.
Flash Drive From Tape*	Presents a screen with buttons for each drive. Press a drive button to update the firmware for that drive using files on a cartridge. If a tape is currently in the drive, you are prompted to move the tape to a different location.
Flash Drive From SCSI*	Presents a screen with buttons for each drive. Press a drive button to update the firmware for that drive using a SCSI connection from an external PC. If a tape is currently in the drive, you are prompted to move the tape to a different location.
Flash Slaves*	Updates the firmware of a Slave library using the Master firmware image. **NOTE:** Only visible on Master library status screen.

*Recommended for Overland Authorized Service Technicians only.

Diagnostics Button (Utilities)

IMPORTANT: The Diagnostics option (Figure 5-20) is designed for use by Overland Authorized Service Technicians to run diagnostic functions to verify the proper operation of the library and is not available for access by end users.

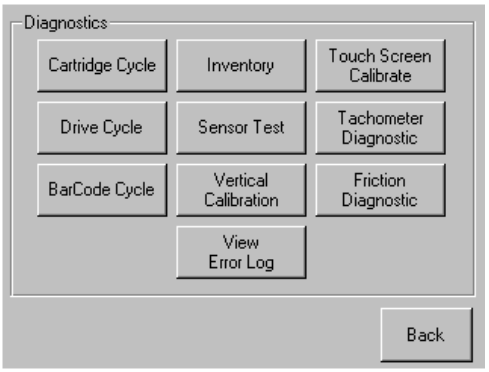


Figure 5-21: Diagnostics Submenu Screen (Utilities)

Factory Button (Utilities)

IMPORTANT: The Factory option is designed for use by Overland Factory Technicians and is not available for access by end users.

Security Level Button (Utilities)

The Security Level button in the Utilities area provides a means to validate passwords to access different security levels (Figure 5-22).

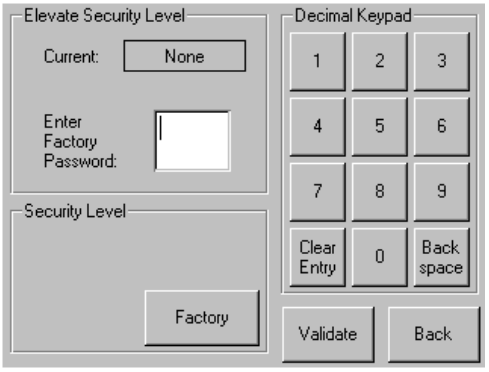


Figure 5-22: Security Level (Utilities)

See "Password Protection" on page 5-2 for more details.

Library Button (Edit Options)

The Library button in the Edit Options area lets you edit the user options that are displayed (Figure 5-23) when the Library Options button is pressed in the View System Data area. Use the ▲ or ▼ arrows to shift between screens.

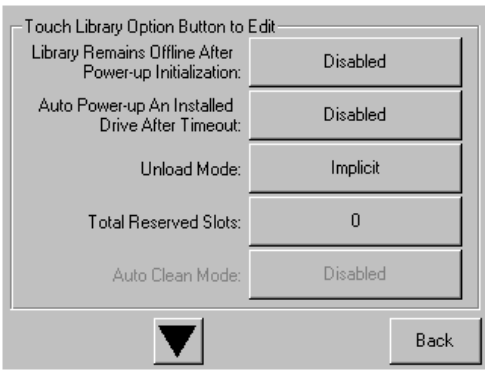


Figure 5-23: Library Initial Screen (Edit Options)

This table shows the different library options available:

Table 5-4: Editable Library Options

Option	Description
Library Remains Offline After Power-up Initialization	Lets you enable or disable whether the library remains offline after power-up initialization. If enabled, you must press the Online button on the Default screen to bring it online. **Default:** Disabled.
Auto Power-Up an Installed Drive After Time-out	Lets you enable or disable whether a tape drive automatically powers up after being replaced if it is not turned on manually. There is a short 2-second delay before the automatic power up occurs. **Default:** Enabled.
Unload Mode	Lets you select either an implicit or explicit tape unload mode for a SCSI Move Media command from the host. If Implicit is selected, the library unloads a tape drive before attempting to move a cartridge from that drive. If Explicit is chosen, the host must issue a SCSI Unload command to a tape drive before each Move Medium command. **Default:** Implicit.
Total Reserved Slots	Lets you reserve up to 15 LTO or 13 SDLT slots that are located in the Fixed Slots. The slots are reserved from the last enabled slot (the last fixed slot) forwards. The reserved slots can be used to store cleaning cartridges and are labeled “Clng *n*” on the Cartridge Map and Status screens. **Default:** Ø.
Auto Clean Mode	Lets you enable or disable the automatic cleaning cycle driven by tape drive requests. **NOTE:** To use this option, you must have reserved one or more slots for a cleaning cartridge using the Total Reserved Slots option. **Default:** Disabled.
Drive and Slot Numbering	Lets you specify whether SCSI elements in the library use either zero-based or one-based numbering. This only affects the GUI touch screen, not the actual SCSI element addresses. For example, the first slot would be either Slot 0 (zero-based) or Slot 1 (one-based). **Default:** One Based.
LCD Contrast Adjust	Lets you increase or decrease the contrast of the LCD display. The incremental steps range from 1 to 32. This is the same as the Contrast controls on the Default screen. **Default:** 16.

Table 5-4: Editable Library Options(Continued)

Option	Description
Bar Code Label Size	Lets you limit the maximum number of characters reported for the bar code label both to a host and on the Cartridge Map. Possible settings are 1 through 8. This is to accommodate software that requires that bar code labels be less than eight characters. It is used primarily for a SCSI Read Element Status command. **Default:** 8.
Bar Code Label Alignment	Lets you specify the alignment of a bar code label reported in the response to the SCSI Read Element Status command. The options are Left Align or Right Align. When used in conjunction with the label size option, this option strips unwanted trailing characters (left alignment) or leading characters (right alignment). **Default:** Left Align.
Bar Code Label Check Digit	**CAUTION:** Standard bar code labels from Overland do not have a check digit. Enabling this option prevents those labels from being read. Lets you enable or disable the verification of a check digit character in the bar code label. • For bar code labels *without* the check character, select **Disabled**. • For bar code labels *with* the check character, select either **Enable Check, Send** [the check character to the host] or **Enable Check, Don't Send** [the check character to the host]. If disabled and a bar code label with a check character is read, the check character is displayed as part of the bar code. If enabled and a bar code label with no check character is read, the library will indicate No Label Present. **Default:** Disabled.
Bar Code Reader	Lets you specify whether the bar code reader will retry reading bar code labels on individual cartridges. **Default:** Retries Enabled.

Table 5-4: Editable Library Options(Continued)

Option	Description
Module Configuration	Lets you specify the Library Module Configuration. Three options are available: • **Standalone** - Used when the library contains a single unit. • **Master** - Used to designate this library as the primary library which controls the XpressChannel® in a multiple library system. • **Slave** - Used to designate this library as a slave library in a multiple library system. **Default:** Standalone.
Custom Display	Lets you turn off the Overland Storage name and logo that is displayed during the POST and on the Default screen. When enabled, "Initializing" is displayed during the POST. On the Default screen, the upper left corner and logo area is left blank. Also, Technical Support Assistance is disabled and the "Overland Storage" name on the WebTLC status page is removed. The Enabled or Disabled setting for this option will not change when Set Defaults is selected (Menu > Maintenance > Set Defaults). **Default:** Disabled.

SCSI/FC Button (Edit Options)

NOTE: The options displayed vary based on the type of drives installed in the library.

The SCSI/FC button in the Edit Options area lets you edit the user options that are displayed when the SCSI/FC button is pressed in the View System Data area. See Figure 5-24 for the SCSI options initial screen and Figure 5-25 on page 5-22 for the FC options initial screen. Use the ▲ or ▼ arrows to shift between screens.

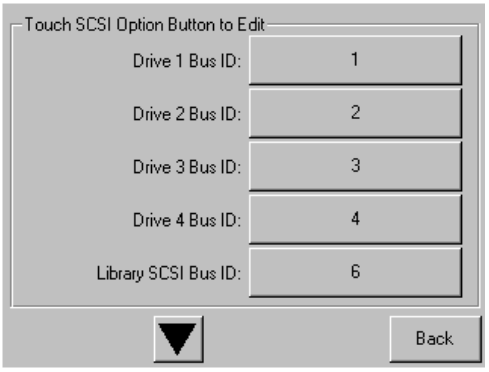


Figure 5-24: SCSI Initial Screen (Edit Options)

This table shows the different SCSI drive options available:

Table 5-5: NEO Library SCSI/FC Editable Options

Definition	Option and Default Description
Drive *n* Bus ID (SCSI drives installed)	Lets you set the SCSI addresses of the drives. The default addresses are: Drive 1 = ID 1 Drive 2 = ID 2 Drive 3 = ID 3 Drive 4 = ID 4 See "NEO SERIES Tape Drive and Connector Locations" on page 1-3 for a drive numbering diagram.
Library SCSI Bus ID	Sets the SCSI address for the library robotics. **Default:** 6.
Library SCSI Bus Parity	Lets you enable or disable the SCSI bus parity checking of the library robotics. **Default:** Enabled.
Mail Slot Access	Lets you select if a host Prevent Allow Medium Removal command inhibits or allows an operator access to the mail slot magazine. **Default:** "Prevent Allow" Command Inhibits.
SCSI Mode	Selects either the SCSI-2 or SCSI-3 command set for the library. **Default:** SCSI-3.
Unit Attention Reporting	Lets you select reporting of all or just one of the stacked-unit attention conditions. If set to Report All, the unit reports all unit attention conditions in sequence. If set to Report One, the unit reports only the highest priority condition. **Default:** Report All.
Init Element Status	Specifies the library's response to the SCSI Initialize Element Status command. The possible settings are No Inventory, Force Inventory, and Force Label Scan. **Default:** No Inventory.
Device Capability Page Length	Lets you choose between Short (14 bytes) and Long (18 bytes) lengths of the Mode Sense/Select Device Capabilities Page (SCSI page 1Fh) to accommodate different SCSI device implementations. **Default:** Short (14 bytes).
Transport Element Base Address	Lets you set the base address for the Transport Element (robotics) of the library. The available range is Øh through FFFFh. **Default:** ØxØ.
Storage Element Base Address	Lets you set the base address for the Storage Elements (drawer slots) of the library. The available range is Øh through FFFFh. **Default:** Øx2Ø.

Table 5-5: NEO Library SCSI/FC Editable Options(Continued)

Definition	Option and Default Description
Transfer Element Base Address	Lets you set the base address for the Transfer Elements (tape drives) of the library. The available range is Øh through FFFFh. **Default:** Øx1EØ.
Import/Export Element Base Address	Lets you set the base address for the Import/Export Element (Mail Slot) of the library. The available range is Øh through FFFFh. **Default:** Øx1CØ.
Product Identification	Specifies the response of the library's robotics to the Product ID field of the SCSI Inquiry command. The choices are NEO Series, LXB, or a custom ID (Vendor Unique). The ID must be exactly 16 characters long so blanks are appended to the end of a shorter ID. **Default:** NEO Series (*+6 spaces*).
Vendor Identification	Specifies the response of the library's robotics to the Vendor ID field of the SCSI Inquiry command. The choices are OVERLAND or a custom ID (Vendor Unique). The ID must be exactly 8 characters long so blanks are appended to the end of a shorter ID. **Default:** OVERLAND.
Post Recovered Errors	Lets you enable or disable the reporting of TapeAlert informational exception conditions with a Recovered Error sense key, when the Method of Reporting Information Exceptions (MRIE) field is set to a value of Øx3 in Mode Page 1Ch, or if the TapeAlert Mode option is set to Rec. Error (cnd). **Default:** Disabled.
TapeAlert Mode	Specifies conditions for logging and reporting the following TapeAlert data options: • **Logging Disabled**—Inhibits the logging feature. • **No Exceptions**—Information exceptions are not reported. • **Generate Unit Attention**—Reports information exceptions with a Unit Attention sense key and an ASC/ASCQ of 5D/ØØ. • **Conditionally Generate Recovered Error**—If Post Recovered Errors is enabled, reports information exceptions with a Recovered Error sense key and an ASC/ASCQ of 5D/ØØ. • **Unconditionally Generate Recovered Error**—Unconditionally reports information exceptions with a Recovered Error sense key and an ASC/ASCQ of 5D/ØØ. • **Generate No Sense**—Reports information exceptions with a No Sense sense key and an ASC/ASCQ of 5D/ØØ. • **Report on Unsolicited Request Sense**—Reports information exceptions with a No Sense sense key and an ASC/ASCQ of 5D/ØØ only in response to an unsolicited Request Sense command. **Default:** Logging Disabled.

Table 5-5: NEO Library SCSI/FC Editable Options(Continued)

Definition	Option and Default Description
Abort Move Status	Lets you select the library's response if it receives a SCSI Reset or Abort command while a Move Medium command is in progress. The options are Busy or Not Ready. **Default:** Busy.
Door Open Response	Specifies the SCSI response when a library media drawer is being accessed manually. The choices are Ready or Not Ready. **Default:** Not Ready.
Initiate Wide Data Transfer Negotiation	Lets you enable or disable the library initiating a SCSI synchronous negotiation with the host. The choices are Do Not Initiate or Initiate. NOTE: The library **always** responds to a host-initiated synchronous negotiation. **Default:** Initiate.
Data Speed Transfer	Lets you set the SCSI data transfer rate for the library robotics to Synchronous, 10 MB/sec; Synchronous, 5 MB/sec; or Asynchronous Only. **Default:** Synchronous, 10 MB/sec.
Report Element Type	Lets you determine the method to report the type of library elements installed (SDLT or LTO drives) using the SCSI Read Element Status command. The options are Disabled or Enabled. Select Disabled for the standard method that uses the DVCID CDB field. Select Enabled to use the vendor-specific field in the Element Descriptor. **Default:** Disabled.
Fast Terminate Sequence	This option modifies the comand sequence sent to a SCSI controller to terminate a SCSI command. The settings are Disabled or Enabled. • Select **Enabled** to send a single command terminate sequence. The single command terminate sequence is recognized by all SCSI host adapters and is used to accommodate Network Appliance servers using QLogic SCSI host adapters. • Select **Disabled** to use the original functionality that sends a three-byte sequence (Send Status Byte, Send Message in Byte, and Disconnect). **Default:** Enabled.
Report Binary Device ID for Fibre Channel Drives	Lets you enable or disable the reporting of the World Wide Name in the Device ID field of the Read Element Status Data Transfer Element Descriptor. When disabled, this option returns the ASCII descriptor (Vendor ID + Product ID + Serial Number). **Default:** Disabled.

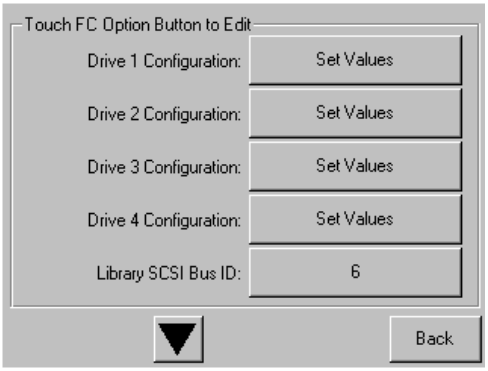


Figure 5-25: FC Initial Screen (Edit Options)

Table 5-6: NEO Library FC Editable Drive Options

Definition	Option and Default Description
Drive *n* Configuration (FC drives installed)	Press Set Values to display additional screens of editable data for Fibre Channel drives. See Table 5-6, "NEO Library FC Editable Drive Options," for details.
Port *n* Control	Specifies the method for setting the AL-PA. The settings are Disable, Soft Address, and Hard Address. When Hard Address is selected, the Port *n* ID button is enabled to select a valid Loop ID. Only one port at a time can be used. **Default:** Soft Address.
Port *n* Loop ID	Specifies the Loop ID that the tape drive uses to determine the AL-PA for Port *n*. The possible settings are 1-125. NOTE: This option requires Hard Address to be selected in the Port *n* Control option. **Default:** 1.
World Wide Port *n* Name	Select either a Default or Custom WWPN. The Default setting uses the factory-configured WWPN while Custom allows you to create a unique name for Port *n*. **Default:** Default.
World Wide Node Name	Select either a Default or Custom WWPN. The Default setting uses the factory-configured WWPN while Custom allows you to create a unique name for the device. **Default:** Default.
Topology	Specifies the topology used by the Fibre Channel ports. The four options are Use Loop, Allow Point-to-Point; Use Point-to-Point, Allow Loop; Force Loop; or Force Point-to-Point. **Default:** Use Loop, Allow Point-to-Point.

Table 5-6: NEO Library FC Editable Drive Options(Continued)

Definition	Option and Default Description
Speed	Sets the link speed in gigabits used by the Fibre Channel ports. The options are Auto, 1 Gb/sec., or 2 Gb/sec. **Default:** 2 Gb/Sec.
Directory Registration	Controls whether additional registrations are performed prior to a Register FC-4 after a drive fabric login. The choices are Yes or No. When this option set to Yes, the following additional registrations are performed: Register Node Name (RNN), Register Port Name (RPN), and Register Class of Service (RCS). **Default:** No.

Network Button (Edit Options)

The Network button in the Edit Options area lets you edit the user options that are displayed (Figure 5-26) when the Network Options button is pressed in the View System Data area. Use the ▲ or ▼ arrows to shift between screens.

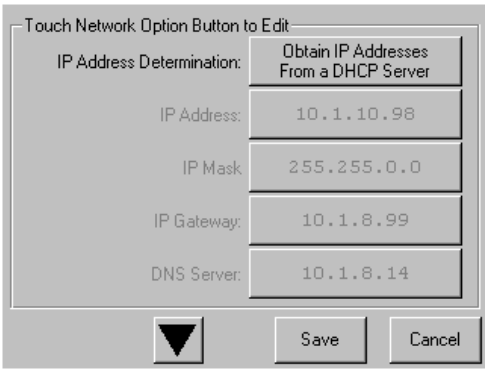


Figure 5-26: Network Initial Screen (Edit Options)

This table shows the different network options available:

Table 5-7: Network Editable Options

Option	Description
IP Address Determination	Lets you select the method for setting the IP address of the library's embedded WebTLC protected Internet site. The settings are Obtain IP Address From a DHCP Server or User Specified IP Address. **Default:** Obtain IP Address From a DHCP Server.
IP Address*	Lets you enter a valid IP address for WebTLC using the numeric keypad. **Default:** 255.255.255.255.
IP Mask*	Lets you enter a valid Subnet Mask address for WebTLC using the numeric keypad. **Default:** 255.255.Ø.Ø.

Table 5-7: Network Editable Options(Continued)

Option	Description
IP Gateway*	Lets you enter a valid Gateway IP address for WebTLC using the numeric keypad. **Default:** 255.255.255.255.
DNS Server*	Lets you enter a valid DNS server address using the numeric keypad. **Default:** 255.255.255.255.
Web Level 1 and FTP Login	Lets you enter up to 15 alphanumeric characters as a password for Level 1 access via WebTLC. **Default:** 1.
Web Level 2 Login	Lets you enter up to 15 alphanumeric characters as a password for Level 2 access via WebTLC. **Default:** 2.
Enable Web Secure Login?	Lets you select to encrypt the password entered at the WebTLC login screen. The options are Yes or No. Select Yes when the Java Console is enabled; otherwise, select No. **Default:** Yes.
Disable Web Level 2 Access?	Lets you control the level of access that users have to the WebTLC. The options are Yes or No. Level 1 limits access to the Status screen to display the library and drive status information. Level 2 permits access to both the Status screen and the Move Media, Setup, Functions, and History menus. **Default:** No.
Library Name	Lets you enter a custom library name that is displayed on the WebTLC page. Up to 100 alphanumeric characters can be entered. **Default:** (*blank*).

* These options are only valid if the IP Address Determination Option is set to User Specified IP Address. Otherwise, they are greyed out.

Passwords Button (Edit Options)

The Password button in the Edit Options area allows you to set up and edit passwords to control access to library functions. It offers three pre-defined "levels" of user security (Figure 5-27 on page 5-25).

NOTE: See "Password Protection" on page 5-2 for more information.

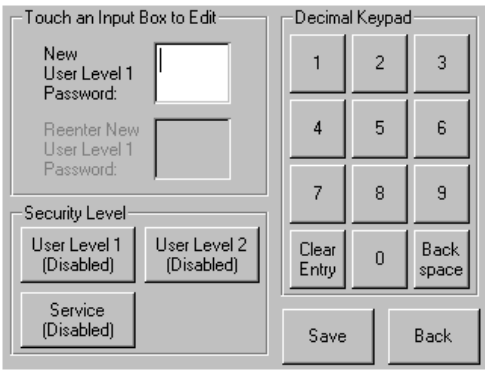


Figure 5-27: Library Password Levels

Each password is represented by four decimal digits that are stored in NVRAM (non-volatile memory) in a range of 0001 to 9999. To disable password verification for a level, enter 0000 as the new password.

NOTE: While the input box allows for 5 digits, the passwords are limited to only 4.

Once a level is enabled, you must have that level of password or higher to change or disable the password protection. Also, you can use a higher level password to gain access to a lower level operation. For example, use a Service password to access the Move Media operation (Level 2).

To create or change a password:

1. Select the **Security Level** by pressing the appropriate button on the lower left.
2. In the **New (Level) Password** input box, enter 1–4 digits using the Decimal Keypad.
3. Touch the **Reenter New (Level) Password** input box to activate it.
4. **Reenter** the same 1–4 digits using the Decimal Keypad.
5. Press **Save**.
6. At the Status dialog box, press **OK**.

Additional Menu Items for Partitions

When a NEO library is partitioned, additional items appear in several GUI menus to help manage those partitions. Refer to Appendix B, "Partitioning" for more details.

CHAPTER 6

WebTLC Usage

WebTLC (Web Total Library Control) is a remote interface device built into your NEO SERIES library module, that can be connected to your LAN. It lets you monitor and control your automated tape library from any computer connected to your network or via the World Wide Web.

The WebTLC hosts a dedicated, protected Internet site that displays a graphical representation of your library that can be accessed using either Microsoft Internet Explorer (3.0 or higher), Firefox (1.0 or higher), or Netscape (3.0 or higher) browser with Java and FTP configured. WebTLC shows you overall status at a glance and presents a control panel for making adjustments and viewing details down to the cartridge level.

In order to use WebTLC, you must have the following available:

- 10BASE-T or faster Ethernet network
- Dedicated IP address (either Internet or local intranet)
- Web browser on a computer that has access to your network
- Host computer with COM port (initial setup and maintenance procedures)

IMPORTANT: The information in this chapter is based on **firmware version 6.06**. It is highly recommended that you upgrade to this or a higher level to maximize your library's potential.

Setting Up WebTLC

To set up WebTLC for remote access, you need to set up the IP addresses using the front GUI:

1. Press **Menu > Network**.
   See Table 5-7 on page 5-23 for more details.
2. Press **IP Address Determination** to set how the WebTLC IP addresses are chosen.
3. Select one of the following:
   - Accept the default **Obtain IP Addresses From a DHCP Server** to automatically set them.
   - Press **User Specified IP Addresses** to set them manually.

4. If you selected User Specified IP Addresses, enter this **information**:
   - IP Server
   - IP Mask
   - IP Gateway
   - DNS Server
5. Set up the WebTLC **passwords and level** options:
   - Web Level 1 and FTP Login
   - Web Level 2 Login
   - Enable Web Secure Login?
   - Disable Web Level 2 Access?
6. Enter a custom **Library Name**.

With WebTLC configuration complete, you can now exercise Total Library Control from a remote host.

Accessing WebTLC

Since WebTLC provides the same access and controls available from the GUI touch screen, the focus of this section is on the browser-based controls and layouts for accessing those same commands.

NOTE: The library must be in the ready mode to establish communications with WebTLC. If you are unable to access the library with your browser, verify that it is not offline.

1. Type the WebTLC **unique IP address** in the URL field of your browser, and press **Enter**.
2. At the Login screen (Figure 6-1), check any **boxes** desired
   - The optional check box to **prevent other Level 2** sessions is a lockout feature to prevent other users from making changes at the same time.
   - The optional check box to **disable frames** keeps the control on the same page in your browser as the information.

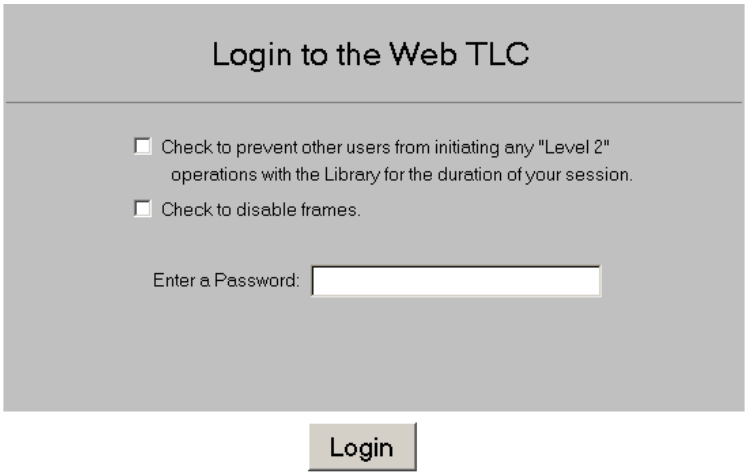


Figure 6-1: WebTLC Login Screen

3. After checking any optional boxes, enter your **password**, and click **Login**.

   The required **password** is either a Level 1 or Level 2 password. The WebTLC passwords are case sensitive and must be entered exactly. The default passwords are "**1**" for Level 1 and "**2**" for Level 2. These can be changed using the library GUI.

   See "Passwords Button (Edit Options)" on page 5-24 for details about WebTLC passwords.

The WebTLC Control Panel (Figure 6-2) and Status screen appears.

Figure 6-2: WebTLC Control Panel

NOTE: After 20 minutes of inactivity, the web session is automatically logged out and the security level is reset to off. However, if the Status screen has auto-refresh turned on, it will continue to stay active until you either log out or view a different page for more than 20 minutes without activity.

WebTLC Navigation

Each WebTLC page consists of two frames—a top navigational frame and a lower data frame. The WebTLC buttons in the top frame (Figure 6-3) provide easy access to different web pages for viewing information and configuring options. The library name is displayed below the button bar on all pages (see "Access Tab" on page 7-13 to change the name).

Figure 6-3: WebTLC Top Navigational Frame

IMPORTANT: Do not use the browser's Back button to return to a previous screen. Always use the buttons to ensure the data is refreshed and displayed correctly.

Access to the various WebTLC pages is controlled by the level of security set when initially logging in:

- Level 1 (User-level) access – view Status and History tabs only.
- Level 2 (Administrator-level) access – view and configure all settings, move media, run diagnostics, and update firmware.

Use Table 6-1 to determine what options are available and their security levels.

Table 6-1: WebTLC Navigation Tab Descriptions & Security Levels

Button	Functionality or Access	Security
Status	Displays visual representations of the drives and magazines, library status chart, and drive status charts.	All Levels
Move Media	Lets you load or remove media from a tape drive, or move media to different slots within the library.	Level 2 only
Setup	Provides access to most library configuration parameters.	Level 2 only
Functions	Offers maintenance and diagnostic options for the library.	Level 2 only
History	Gives you access to view or download library trace logs and provides an automated service ticket process.	All Levels
Logout	Disconnects from WebTLC and resets the security level to off.	All Levels

General Procedure for Changing WebTLC Settings

1. Click the appropriate **button** to display the functionality to be configured.

> **CAUTION:** Clicking a button may cause the library to go offline possibly interrupting host requests. Once you exit the particular menu item, the library automatically goes back online.

2. If the **Library to go Offline** message screen (Figure 6-4) is displayed, do the following:

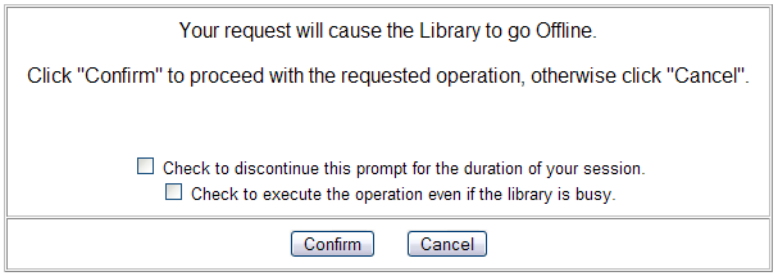


Figure 6-4: Offline Confirmation Screen

   a. If desired, check one or both of the following options.
      - If you no longer want this message to appear, check the **first** box.
      - If you want the function to be executed even if the library is busy, check the **second** box.

   b. Click **Confirm** to continue (or **Cancel** to terminate the process).

3. Follow the on-screen instructions. In most cases, when done, click **Submit**.

   If necessary, click a **button** on the main configuration page to access a subpage of options.

Status Button

The Status button displays a visual representation (Figure 6-5) providing general information about the library and each drive. Scroll down to view all the information. Clicking a drive graphic at the top takes you to the appropriate summary section at the bottom of the screen.

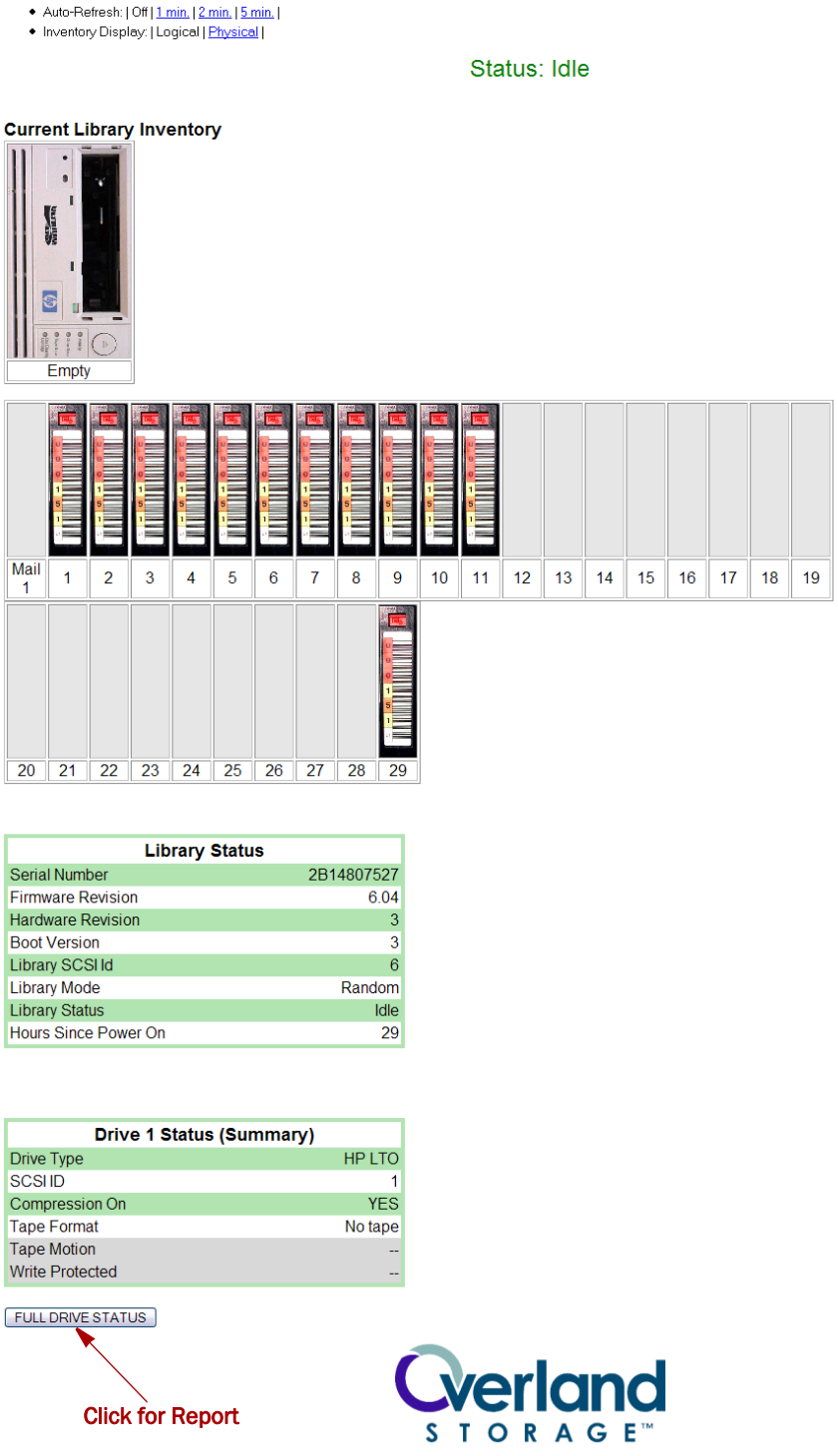


Figure 6-5: WebTLC Status Screen (NEO 2000)

Information available from this screen includes:

- Library Status
- Drive Status (Summary) for each drive
- Full Drive Status (available through the Full Drive Status button).

Status Screen Options

You can configure two browser settings at the top of this screen:

Table 6-2: Status Screen Browser Settings

Setting	Options	Description
Auto Refresh	Off 1 min 2 min 5 min	Use setting to ensure the status of your library displayed on the browser remains current. **Default:** Off.
Inventory Display	Logical Physical	Use this setting to determine how the library elements are grouped for display: • Logical—drives and slots grouped separately • Physical—drives and slots grouped by each library unit (such as, Master/Slave) **Default:** Logical.

Status Screen Information Tables

After the slot information comes the library and drive status tables. The Library Status table (Figure 6-6) includes the current library state.

Library Status	
Serial Number	2B14807527
Firmware Revision	6.06
Hardware Revision	3
Boot Version	3
Library SCSI Id	6
Library Mode	Random
Library Status	Idle
Hours Since Power On	329

Figure 6-6: Library Status Table Showing Current Library Status

This table details all the available library states:

Table 6-3: Library Status Table's Library Status Field Details

Displayed Status	Description
Library Initialization	Performing POST and startup inventory.
Library Idle	Ready mode.
Cartridge Fetch	Moving a tape cartridge to a drive.

Table 6-3: Library Status Table's Library Status Field Details(Continued)

Displayed Status	Description
Moving Cartridge	Returning a tape cartridge to a storage slot.
Taking Inventory	Performing an inventory of tape cartridges in the unit.
Shuttle Parked	During Power Off, the shuttle is moved to the Home position.
Checking Drives	Initializing the drives.
Orphaned Cartridge	Found a tape cartridge where none was suppose to exist.
Mail Slot Inventory	Performing an inventory of the Mail Slots or Slots.

The Drive Status (Summary) table (Figure 6-7) provides the basic drive status.

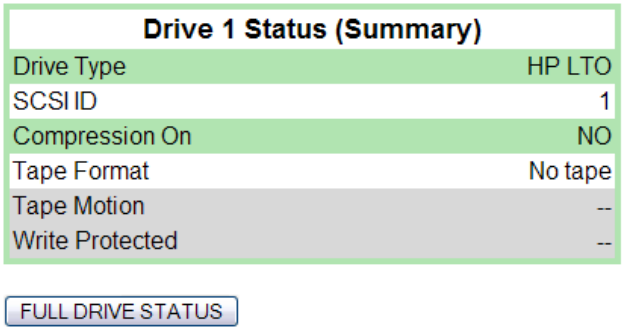


Figure 6-7: Drive Status Table Showing Current Status

Full Drive Status

At the very bottom of the Status screen is a Full Drive Status button. To view detailed drive information for a drive, click the button. If the library has more than one drive installed, a screen prompts you to select the drive you want to see (Figure 6-8).

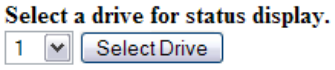


Figure 6-8: Select a Drive for Full Report

The Full Drive Status table is displayed (Figure 6-9 on page 6-8). At this point, you can do one of the following actions:

- To update the data on a single-drive system, click **Refresh Status**.
- To update the data on a multiple-drive system, with the **same** drive number selected, click **Select Drive**.
- To view the full status of a different drive, select a **new** drive number and click **Select Drive**.
- To exit the Full Drive Status page, click any **Navigation button**.

Drive 1 Status (Complete)	
Drive Identification	
Drive Type	HP LTO Gen. 2
Serial Number	HUL3F00928
Vendor ID	HP
Product ID	Ultrium 2-SCSI
Product Revision Level	F45H
Firmware Revision Level	006.288
ACI Revision Level	4.1
SCSI ID	1
Cleaning Information	
Cleaning Needed	NO
Cleaning Required	NO
Cleaning is in progress	NO
Clean Expired	NO
Drive Status	
Cartridge Present	NO
Write Protect	NO
Drive Error	NO
Media Error	NO
Tape Activity	Idle
Compression Enabled	YES
Prevent Media Removal	NO
Cartridge Loading/Loaded	NO
Cartrdge Ready for Access	NO
Cartrdge Ready to Eject	NO
Drive Temperature	-- not supported by drive --
Drive Configuration	
Auto-Load	NO
Auto-Eject	NO
Auto-Thread	YES
Packet Seq	YES
On-Bus	YES
Drive Error Info	
Sense Key	0
Additional Sense Code	0
Additional Sense Code Qualifier	0
Drive Error Code	0

There were 2 drives detected

Select another drive for examination

1 Select Drive

Figure 6-9: Full Drive Status Screen with 2 Drives

Move Media Button

CAUTION: Do not move tapes inside the library while the host applications software is running. Fatal software faults may occur!

NOTE: Level 2 security is required to access this screen.

The Move Media button lets you move a selected cartridge to a target drive or cartridge slot using drop-down lists (Figure 6-10).

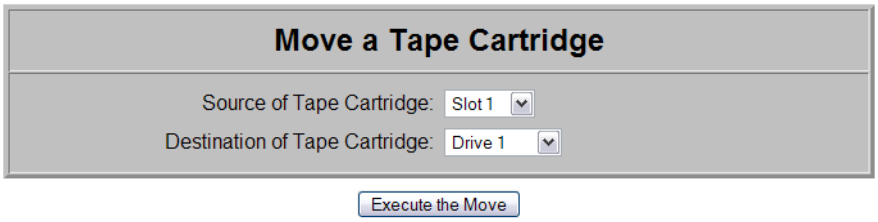


Figure 6-10: WebTLC Move Media Option

1. Using the **Source** drop-down list, choose the slot or drive of the source tape cartridge.
2. Using the **Destination** drop-down list, choose the destination slot or drive.
3. Click **Execute the Move** (click **Confirm** at the going offline message).
   During the move, updates are displayed every few seconds. After the move is completed, a final status message is shown.
4. Click any **Navigation button** to continue.

Setup Button

NOTE: Level 2 security is required to access this screen.

The Setup button provides submenu links that let you configure these nonvolatile library options:

- Library Configuration
- SCSI Configuration
- Drive Configuration
- Notification Registration

Click one of the configuration buttons on the menu (Figure 6-11 on page 6-10) to open a subpage to view or change parameters.

IMPORTANT: If any changes are made, you need to reboot the library. Use the Reboot Library button under Functions.

NOTE: If you have not disabled the Offline Confirmation prompt, it will appear the first time you access any of the configuration options under Setup. Click OK to continue.

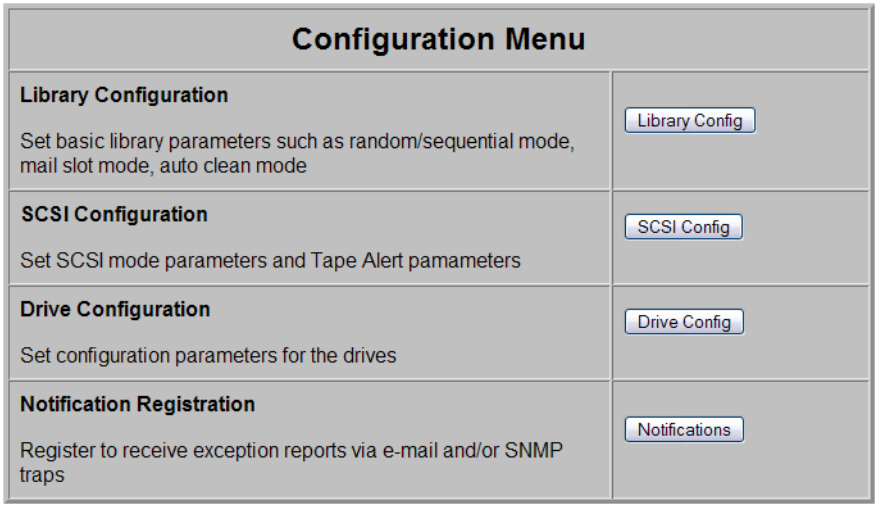


Figure 6-11: WebTLC Setup Option Menu

The settings correspond to those in the Configure Menu on the front control panel (GUI) of your library.

Library Configuration

Clicking the Library button in the Setup menu displays a subscreen (Figure 6-12) for setting the basic library parameters.

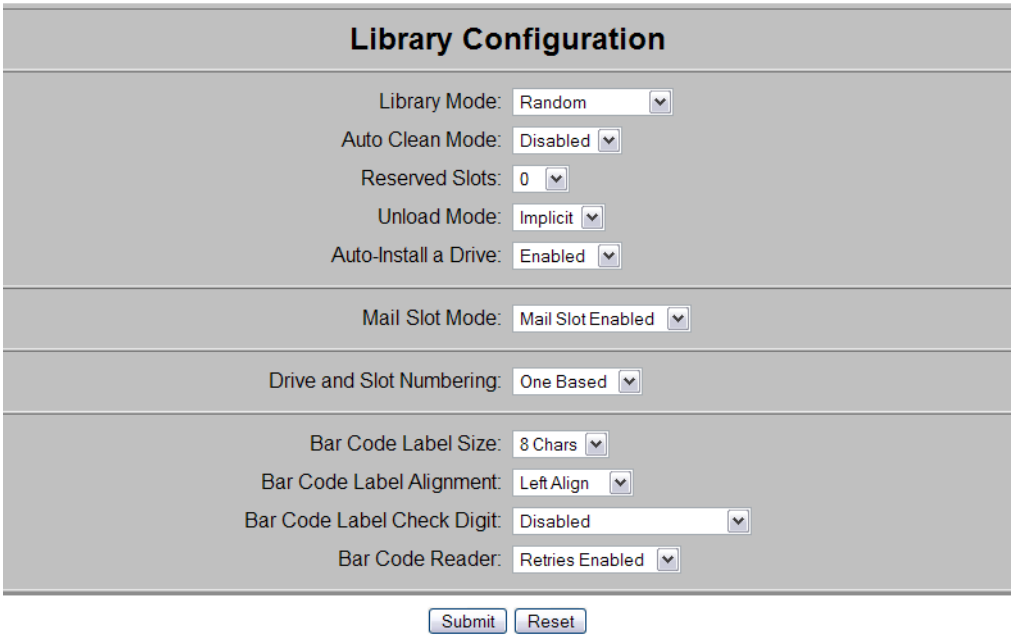


Figure 6-12: Library Configuration Screen (Setup)

Use Table 6-4 to see the options available on this web page and their functionality.

Table 6-4: Library Configuration Options

Component	Options
Library Mode	Allows the library to be set up to run either with random tape usage or in sequential mode. **Default:** Random.
Auto Clean Mode	Select either Enabled or Disabled from the drop-down list to activate this feature. A cleaning tape must be in a reserved slot for this feature to function. **Default:** Disabled.
Reserved Slots	**NOTE:** If the library will be partitioned, it is recommended that the library be partitioned before configuring the reserved slots. Lets you reserve up to 15 LTO or 13 SDLT slots. The slots are reserved from the last slot forward, and are numbered with an "r" prefix on the Status page. **NOTE:** When the library is partitioned, the reserved slots are taken from the last partition but are accessible by either partition. The reserved slots can be used to either store cleaning cartridges or reduce the number of active slots to meet host software requirements. **Default:** 0.
Unload Mode	Choose from either Implicit (no Unload command) or Explicit (separate Unload command to drive) to match the Host application. **Default:** Implicit.
Auto-Install a Drive	Permits automatic installation of new drives as they are detected. If Disabled, new drives can be explicitly installed using the GUI. Choose from either Enabled or Disabled. **Default:** Enabled.
Mail Slot Mode	Choose from either Mail Slot Enabled or Mail Slot Disabled to determine if the Mail Slot can be used or treated as a normal slot. **Default:** Enabled.
Drive and Slot Numbering	Determine if the drives and slots are numbered starting at either one or zero. **Default:** One Based.
Bar Code Label Size	Choose number of characters from the bar code labels actually used by the library. The range is 1–8 characters. **Default:** 8 Chars.

Table 6-4: Library Configuration Options(Continued)

Component	Options
Bar Code Label Alignment	If there are more characters in the bar code than configured as the maximum number, then only the specified number of characters are reported taken from either the Left or Right end of the code based on this setting. **Default:** Left Align.
Bar Code Label Check Digit	Choose one of these settings for the bar code check digit: • Disabled • Enable Check, Send • Enable Check, Don't Send **Default:** Disabled.
Bar Code Reader	Select to either enable or disable the bar code reader from retrying to read a bar code label. **Default:** Retries Enabled.

SCSI Configuration

Clicking the SCSI button in the Setup menu displays a subscreen (Figure 6-13 on page 6-13) used to modify SCSI mode and TapeAlert parameters.

NOTE: Most items on this menu refer to standard SCSI reporting functions. Refer to the SCSI standards documents available on the Internet for information about each function and its configuration options.

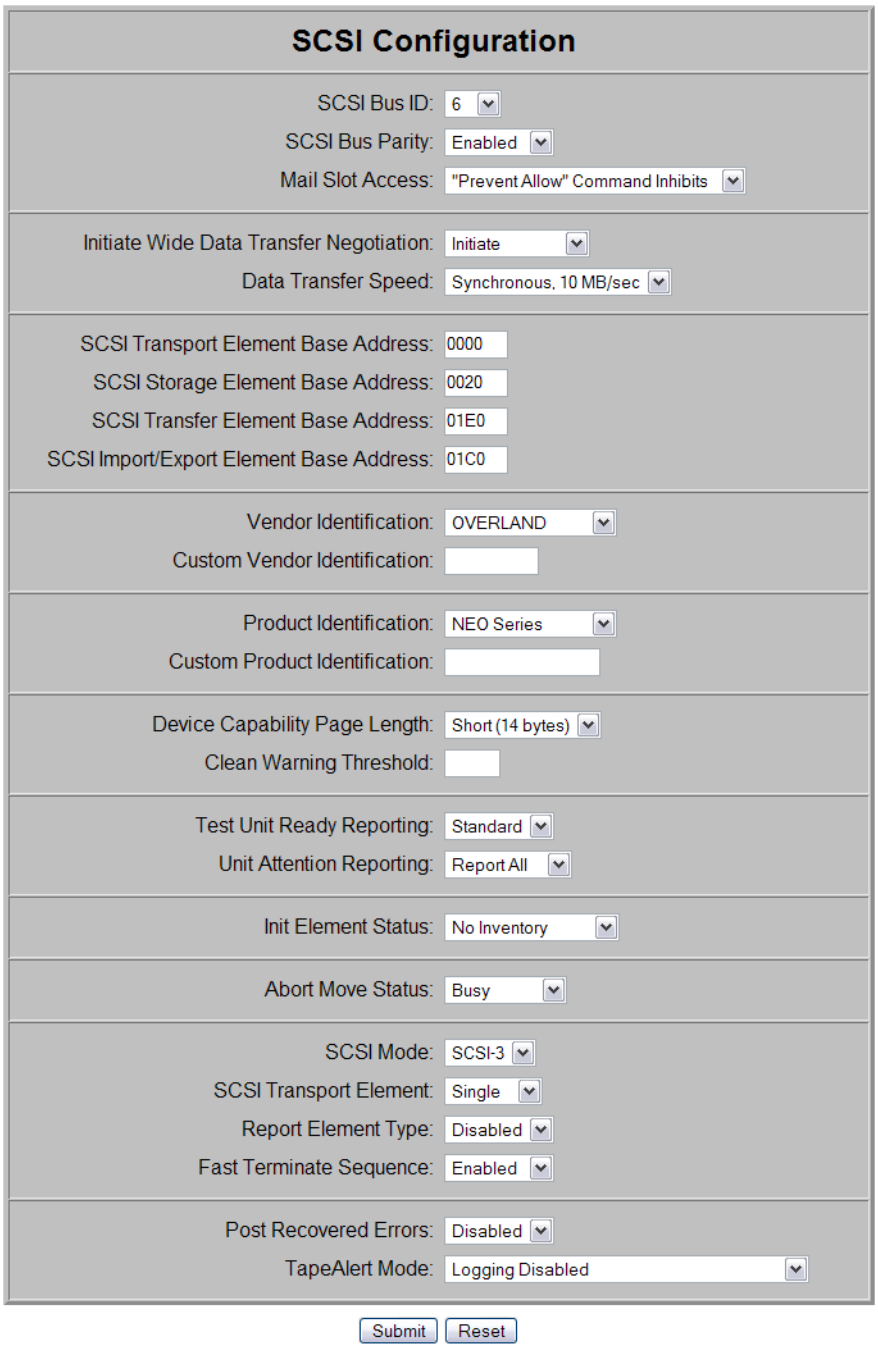


Figure 6-13: SCSI Setup Screen (Setup)

Use Table 6-5 shows the options available and their functionality.

Table 6-5: Setup SCSI Configuration Options

Component	Options
SCSI Bus ID	Sets the SCSI address for the library robotics. The available range is 0 through 15. **Default:** 6.
SCSI Bus Parity	Lets you enable or disable the SCSI bus parity checking of the library robotics. **Default:** Enabled.
Mail Slot Access	Lets you select if a host Prevent Allow Medium Removal command inhibits or allows an operator access to the mail slot magazine. **Default:** Prevent Allow" Command Inhibits.
Initiate Wide Data Transfer Negotiation	Lets you enable or disable the library initiating a SCSI synchronous negotiation with the host. The choices are Do Not Initiate or Initiate. **NOTE:** The library **always** responds to a host-initiated synchronous negotiation. **Default:** Initiate.
Data Transfer Speed	Lets you set the SCSI data transfer rate for the library robotics to Synchronous, 10 MB/sec; Synchronous, 5 MB/sec; or Asynchronous Only. **Default:** Synchronous, 10MB/sec.
SCSI Transport Element Base Address	Set the base address for the Transport Element (robotics) of the library. The available range is Øh through FFFFh. **Default:** ØØØØ.
SCSI Storage Element Base Address	Set the base address for the Storage Elements (magazine slots) of the library. The available range is Øh through FFFFh. **Default:** ØØ2Ø.
SCSI Transfer Element Base Address	Set the base address for the Transfer Elements (tape drives) of the library. The available range is Øh through FFFFh. **Default:** Ø1EØ.
SCSI Import/Export Element Base Address	Set the base address for the I/E Element of the library. The available range is Øh through FFFFh. **Default:** Ø1CØ.
Vendor Identification (& Custom Vendor Identification)	Specifies the response to the Vendor ID field of the SCSI Inquiry command. The choices are OVERLAND or a custom ID (Vendor Unique). The custom ID is entered in the bottom field. The ID must be exactly eight characters long so blanks are appended to the end of a shorter ID. **Default:** OVERLAND.

Table 6-5: Setup SCSI Configuration Options(Continued)

Component	Options
Product Identification (& Custom Product Identification)	Specifies the response to the Product ID field of the SCSI Inquiry command. The choices are NEO Series, LXB, or a custom ID (Vendor Unique). The custom ID is entered in the bottom field. The ID must be exactly 16 characters long so blanks are appended to the end of a shorter ID. **Default:** NEO Series.
Device Capability Page Length	Choose between Short (14 bytes) and Long (18 bytes) lengths of the Mode Sense/Select Device Capabilities Page (SCSI page 1Fh) to accommodate different SCSI device implementations. **Default:** Short (14 bytes).
Clean Warning Threshold	Displays a warning on the front GUI when the number of uses left for a cleaning tape is reached and the tape needs to be replaced. **Default:** 0.
Test Unit Ready Reporting	Uses Standard or Custom setting depending on the host software used. Currently, only Standard is used. **Default:** Standard.
Unit Attention Reporting	Reports all Attention reports or just the last one. **Default:** All.
Init(ialize) Element Status	Specifies the library's response to the SCSI Initialize Element Status command. The possible settings are No Inventory, Force Inventory, and Force Label Scan. No Inventory option sends the inventory data currently stored in the controller memory. **Default:** No Inventory.
Abort Move Status	Selects the response to a SCSI Reset or Abort command while a Move Medium command is in progress. The options are Busy or Not Ready. **Default:** Busy.
SCSI Mode	Selects which SCSI command set to use. Current command set is SCSI-3. **Default:** SCSI-3.
SCSI Transport Element	Reports either a Single or Multiple transport element. **Default:** Single.
Report Element Type	Determines the method to report the type of library elements installed (LTO drives) using the SCSI Read Element Status command. The options are Disabled or Enabled. Select Disabled for the standard method that uses the DVCID CDB field. Select Enabled to use the vendor-specific field in the Element Descriptor. **Default:** Disabled.

Table 6-5: Setup SCSI Configuration Options(Continued)

Component	Options
Fast Terminate Sequence	This option modifies the comand sequence sent to a SCSI controller to terminate a SCSI command. The settings are Disabled or Enabled. • Select **Enabled** to send a single command terminate sequence. The single command terminate sequence is recognized by all SCSI host adapters and is used to accommodate Network Appliance servers using QLogic SCSI host adapters. • Select **Disabled** to use the original functionality that sends a three-byte sequence (Send Status Byte, Send Message in Byte, and Disconnect). **Default:** Enabled.
Post Recovered Errors	Enable or disable the reporting of TapeAlert informational exception conditions with a Recovered Error sense key, when the Method of Reporting Information Exceptions (MRIE) field is set to a value of 0x3 in Mode Page 1Ch, or if the TapeAlert Mode option is set to Rec. Error (cnd). **Default:** Disabled.
TapeAlert Mode	Specifies conditions for logging and reporting the following TapeAlert data options: • **Logging Disabled**—Inhibits the logging feature. • **No Exceptions**—Information exceptions are not reported. • **Generate Unit Attention**—Reports information exceptions with a Unit Attention sense key and an ASC/ASCQ of 5D/00. • **Conditionally Generate Recovered Error**—If Post Recovered Errors is enabled, reports information exceptions with a Recovered Error sense key and an ASC/ASCQ of 5D/00. • **Unconditionally Generate Recovered Error**—Unconditionally reports information exceptions with a Recovered Error sense key and an ASC/ASCQ of 5D/00. • **Generate No Sense**—Reports information exceptions with a No Sense sense key and an ASC/ASCQ of 5D/00. • **Report on Unsolicited Request Sense**—Reports information exceptions with a No Sense sense key and an ASC/ASCQ of 5D/00 only in response to an unsolicited Request Sense command. **Default:** Logging Disabled.

Drive Configuration

Use the Drive Configuration options to set up SCSI or Fibre Channel (FC) drives.

SCSI Drives

When Drive Configuration is selected, a SCSI drive selection screen is displayed (Figure 6-14).

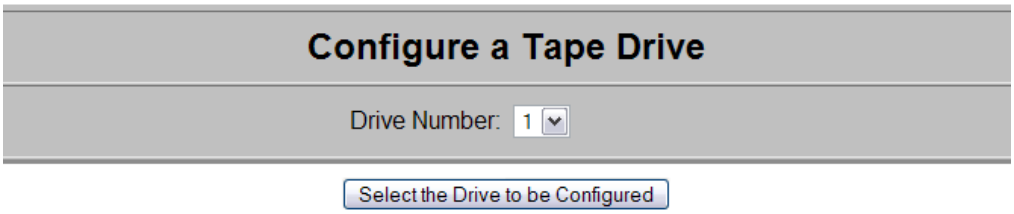


Figure 6-14: Drive Selection Screen (Setup)

Choose a drive from the list and click **Select the Drive to be Configured**. The Drive *n* Configuration screen appears (Figure 6-15).

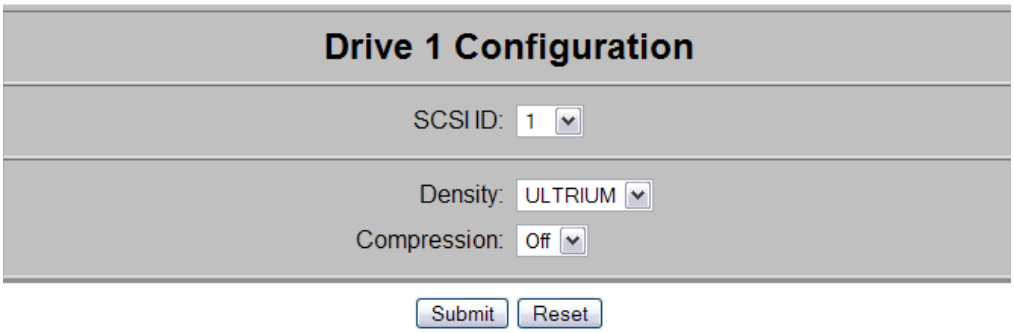


Figure 6-15: SCSI Drive Configuration Screen (Setup)

Table 6-6 shows the options available and their functionality.

Table 6-6: Setup SCSI Configuration Options

Component	Options
SCSI ID	Sets the SCSI address for the drive. The available range is 0 through 15. **Default:** 1.
Density	Select the type of tape drive density. **Default:** ULTRIUM.
Compression	Some LTO-4 or later models offer hardware compression. Choose to have compression either On or Off. **Default:** On.

FC Drives

For Fibre Channel (FC) drives, when the Drives Configuration is selected, a SCSI drive selection screen is displayed (Figure 6-14) that is used to configure the world wide addressing for the drive.

NOTE: Unless special circumstances require a custom name, it is recommended to use the default world wide port and node names.

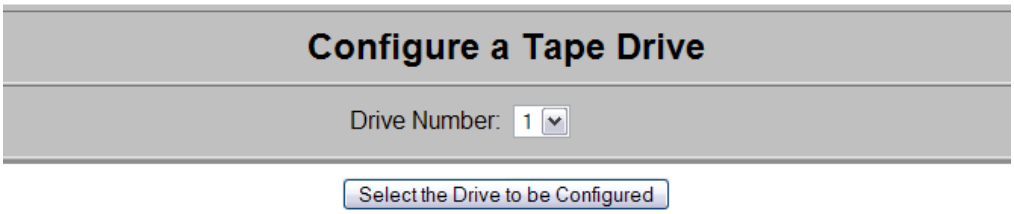


Figure 6-16: Drive Selection Screen (Setup)

Choose a drive from the list and click **Select the Drive to be Configured**. The Drive *n* Configuration screen appears (Figure 6-17).

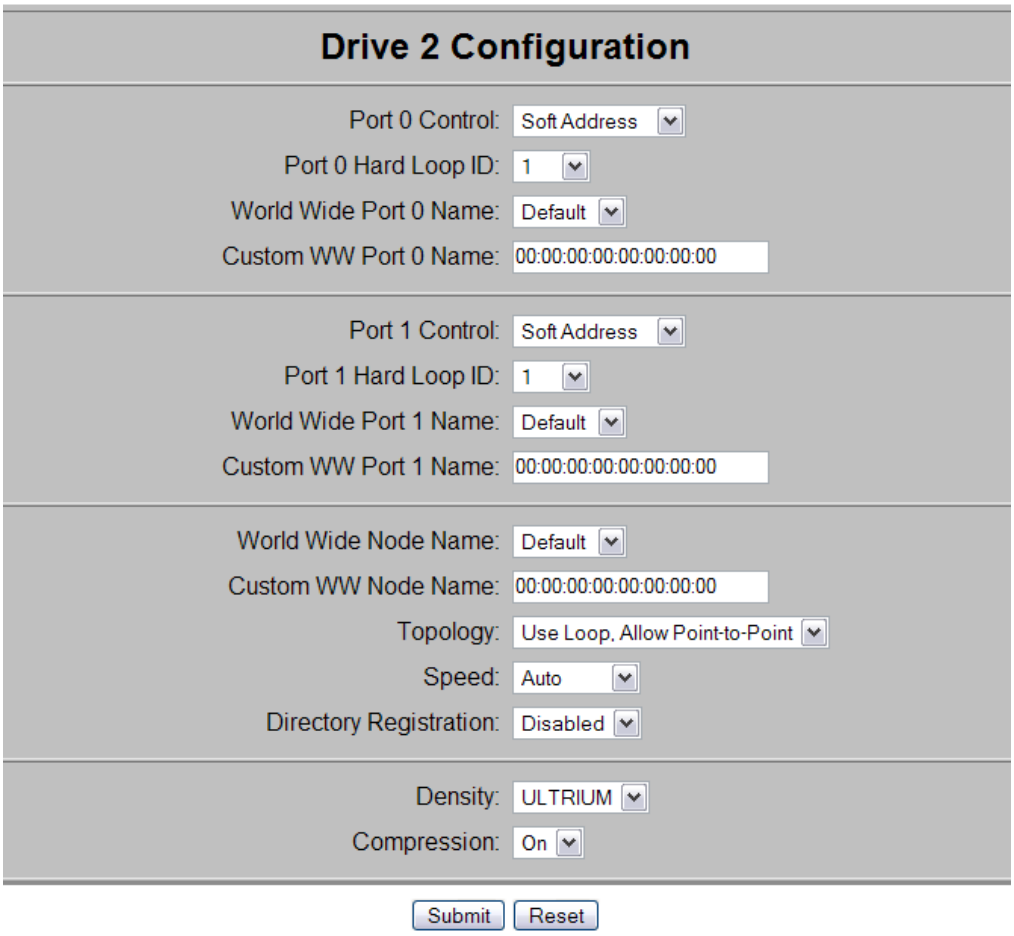


Figure 6-17: FC Drive Configuration Screen (Setup)

Use Table 6-7 shows the options available and their functionality.

Table 6-7: FC Drive Configuration Options

Component	Options
Port *X* Control	**NOTE:** On a two port drive, this option exists for ports A and B. Specifies the method for setting the AL-PA. The settings are Disable, Soft Address, and Hard Address. When Hard Address is selected, the Port *X* Hard Loop ID is enabled to select a valid Loop ID. Only one port at a time can be used. **Default:** Soft Address.
Port *X* Hard Loop ID	**NOTE:** On a two port drive, this option exists for ports A and B. Specifies the Loop ID that the tape drive uses to determine the AL-PA hard address for the port. The possible settings are 1-125. **NOTE:** This option requires Hard Address to be selected in the Port X Control option. **Default:** 1.
World Wide Port *X* Name	**NOTE:** On a two port drive, this option exists for ports A and B. Select Default or Custom to set the World Wide Port Name (WWPN). The Default setting uses the factory-configured WWPN while Custom allows you to create a unique name for Port *X* using the Custom WW Port *X* Name option. **Default:** Default.
Custom WW Port *X* Name	**NOTE:** On a two port drive, this option exists for ports A and B. Create a unique World Wide Port Name for Port *X*. To use this option, World Wide Port *X* Name must be set to Custom. Used to allow the WWNN and WWPN from a removed or replaced drive to be reused to save configuration time. **Default:** 00:00:00:00:00:00:00:00.
World Wide Node Name	Select Default or Custom to set the World Wide Node Name (WWNN). The Default setting uses the factory-configured WWNN while Custom allows you to create a unique name for the drive. **Default:** Default.
Custom WW Node Name	Create a unique World Wide Node Name for Port *X*. To use this option, World Wide Node Name must be set to Custom. Used to allow the WWNN and WWPN from a removed or replaced drive to be reused to save configuration time. **Default:** 00:00:00:00:00:00:00:00.
Topology	Specifies the topology used by the Fibre Channel ports. The four options are Use Loop, Allow Point-to-Point; Use Point-to-Point, Allow Loop; Force Loop; or Force Point-to-Point. **Default:** Use Loop, Allow Point-to-Point.

Table 6-7: FC Drive Configuration Options(Continued)

Component	Options
Speed	Sets the link speed in gigabits per second used by the Fibre Channel ports. The options are Auto, 1 Gb/sec., 2 Gb/sec., or 4 Gb/sec. **Default:** Auto.
Directory Registration	Causes additional registrations to be performed if enabled: Register Node Name (RNN), Register Port Name (RPN), and Register Class of Service (RCS). **Default:** Disabled.
Density	Select the tape density for the tape drive. **Default:** ULTRIUM.
Compression	Some LTO-4 or later models offer hardware compression. Choose to have compression either On or Off. **Default:** On.

Notification Registration

IMPORTANT: Simple Network Management Protocol (SNMP) trap addresses and e-mail settings are network specific. Contact your network system administrator for the appropriate values.

Clicking the Notifications button in the Setup menu displays a subscreen (Figure 6-18) to configure the library for sending out e-mail messages and sending significant system event notifications to the network management system (NMS). You can control the SNMP protocol used and the scope of the events that trigger the messages. Changes take place immediately.

The Notification Registration parameters (Figure 6-18) are equivalent to ones in the NeoCenter utility.

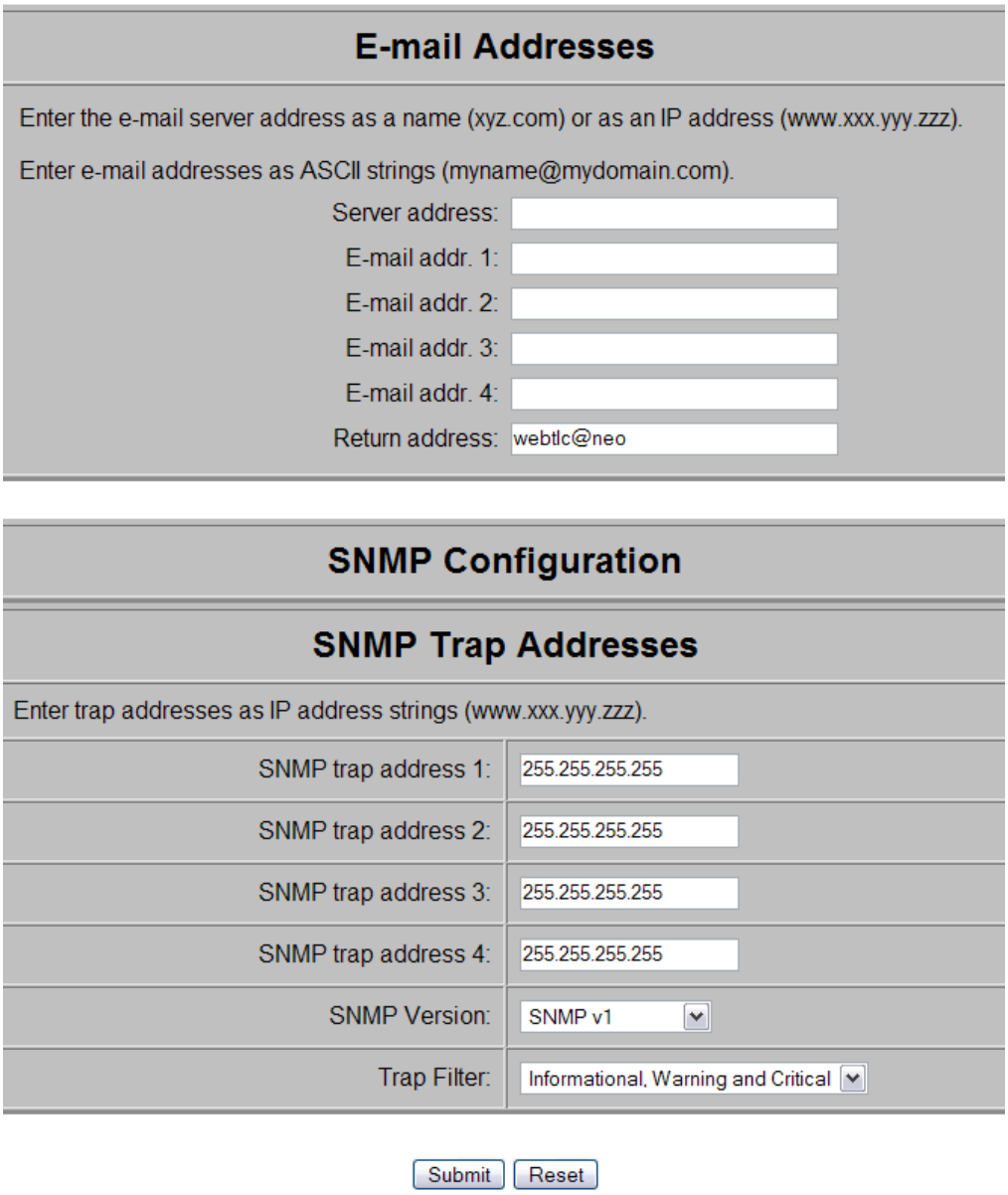


Figure 6-18: Notification Registration Screen (Setup)

Functions Button

NOTE: Level 2 security is required to access this screen.

IMPORTANT: The Diagnostics tests are designed for use by Overland Authorized Service Technicians and is not recommended for access by end users.

NOTE: If you have not already disabled the Offline prompt, it will appear every time you make changes to any of the configuration options under Functions.

The Functions button provides controls for these maintenance functions:

- Library Flash Operation—updates the library's firmware from a file.
- Drive Flash Operation—updates a drive's firmware from a file.
- Perform a Drive Cleaning Operation—the same as Clean Drive under the Maintenance menu group.
- Perform a Timed or Free-Running Library Diagnostic—performs diagnostic tests on the library.

Select one of the maintenance options from the menu (Figure 6-19). For information about downloading firmware, see "Downloading Firmware Updates" on page iv.

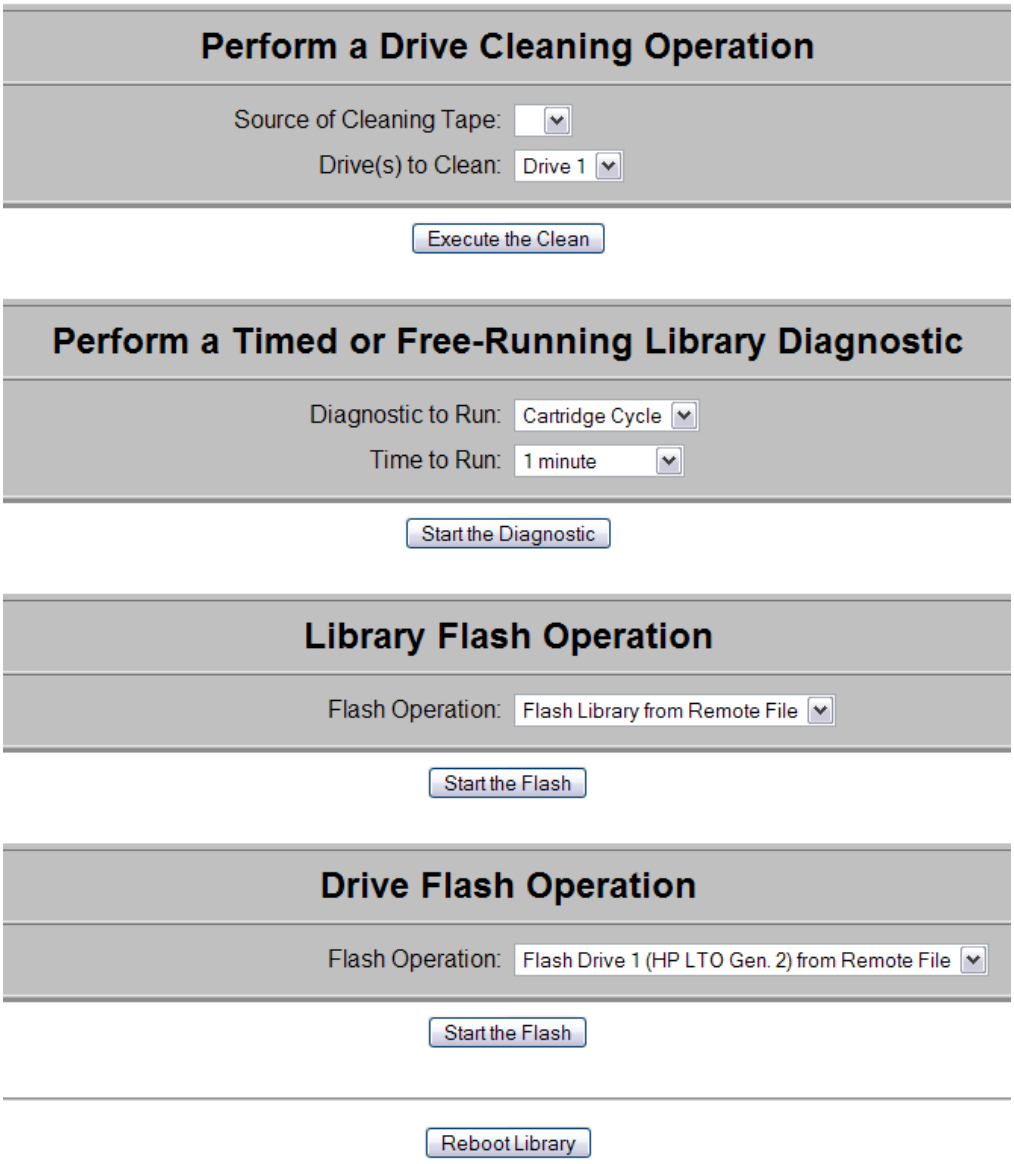


Figure 6-19: Functions Menu Screen

History Button

The History button provides access to the library trace logs (Figure 6-20). You can either display a log on-screen or download it as a binary (BIN) file.

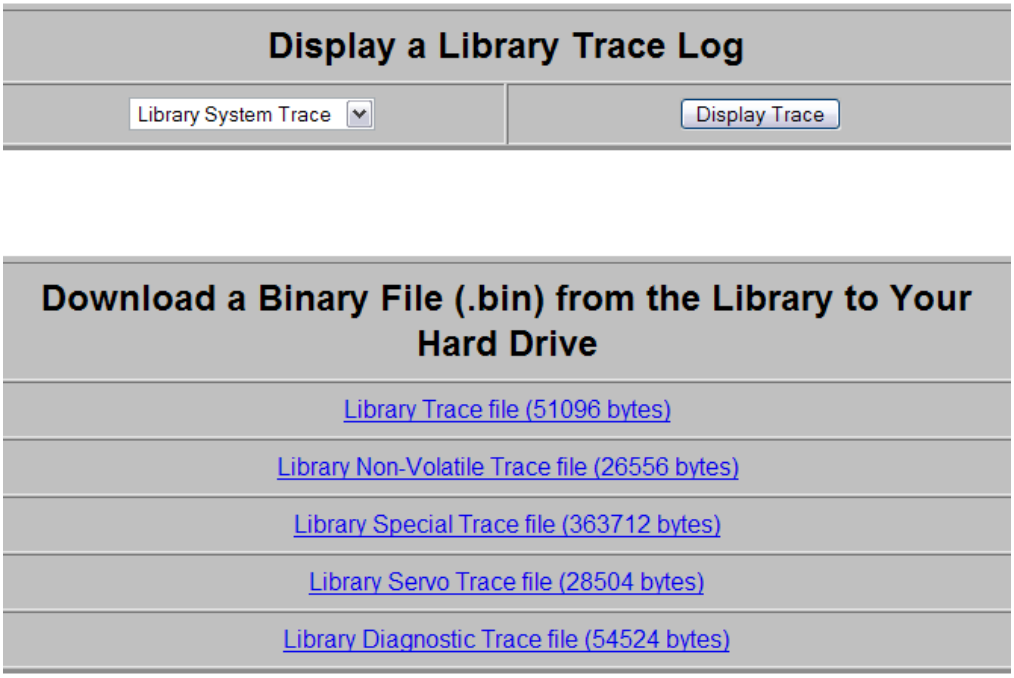


Figure 6-20: History Screen

When you select a file for downloading, a Save As window appears letting you select a network destination for the download.

Logout Button

The Logout button provides an easy egress from WebTLC by shutting down the secure link. It is also recommended that you close your browser to clear all temporary caches.

CHAPTER 7

NeoCenter Usage

The NeoCenter software allows you to access and control a NEO library from a Windows-based PC. It supports most of the same commands and controls that are available from the GUI touch screen on the front of the library. It is also the only way to partition a library.

The NeoCenter software must be installed on the PC.

Installing NeoCenter on a Host

The NeoCenter software is located on the CD included with the library. Follow the instructions on that CD for installing the software.

NeoCenter is designed to run on a PC using Windows 95, 98, 2000, NT 4.0, XP, or Server 2003.

NeoCenter Menu Options

The following table lists all the menu options for NeoCenter with brief descriptions:

Table 7-1: NeoCenter Menu Options

Menu Options	Submenu Option	Description
File	Exit	Exits the NeoCenter program.
View	Toolbar	Displays/hides the toolbar.
	Status Bar	Displays/hides the status bar.
Connect	--	Opens the Serial Port Settings dialog box to connect the host to the library.
Upload	--	Retrieves data files from the library.
Download	--	Sends data files to the library.
Configure	Set Values	Primary configuration options. See "Launching the Configuration Dialog Box" below.
	Set Default	Resets library to factory defaults.
	Set Capacity Key	*(Grayed out)*

Table 7-1: NeoCenter Menu Options (Continued)

Menu Options	Submenu Option	Description
Info	--	Shows general information about the library.
Diag	Reboot Library	Forces a library reboot.
Post-Process	Select Text Editor	Browse to select a text editor for the trace log.
	Select Files	Browse to select the binary, database, and post-processed files.
	Process and Display	Generate the trace log and related displays.
Partitioning	Enable	Actives the partitioning feature.
	View Partition Info	Shows the number of partitions and the assignment of drawers, drives, and mail slots.
	Configure Partition	Creates a new set of partitions deleting any existing partitions.
	Identify Partition Controller	Identifies the controller card for a selected partition.
	Set Partition Number	Choose a number for a partition.
Help	About NeoCenter*	Provides general information about NeoCenter.

*The same information can be seen by clicking the icon on the toolbar.

Configuring the Library Using NeoCenter

NeoCenter can be used to configure the library just like the front panel GUI. This is managed by establishing communication between the host and the library, opening the configuration dialog box, making the changes, and then saving the changes.

For more details about NEO library configuration options, refer to Chapter 5, "Graphical User Interface Usage."

Establishing Host/Library Communications

Once the software is installed, all that is needed to control the library is to establish communications between it and the host.

1. Power up the **library**.
2. Connect the provided **RJ-11 to DB-9** cable between the RS-232 connector on the Library Controller card and a COM port on the host computer.
3. Power up the **host** computer.
4. Launch **NeoCenter**.
   The NeoCenter blank main screen appears (Figure 7-1 on page 7-3).

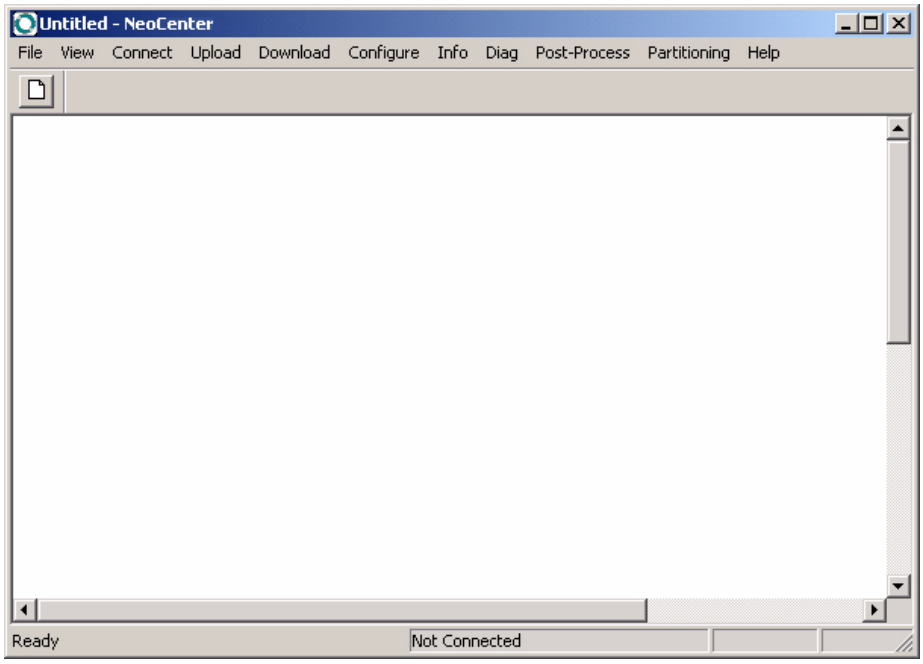


Figure 7-1: NeoCenter Main Screen

5. Click **Connect**.
   The Serial Port Setting dialog box appears (Figure 7-2).

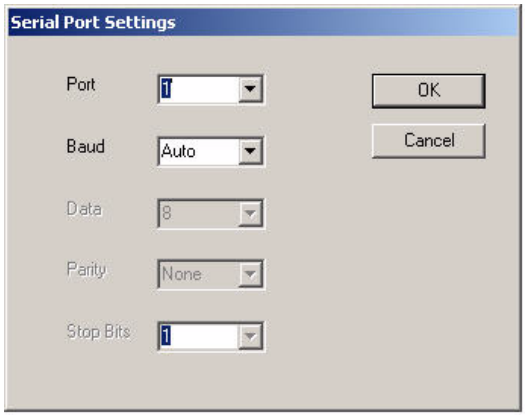


Figure 7-2: Serial Port Setting Dialog Box

6. Verify the COM port **settings**, and click **OK**.

   NOTE: If the connection is not successful, check all cable connections and retry the connection. If communication fails again, contact Overland Storage Technical Support.

Launching the Configuration Dialog Box

After establishing communications, from the NeoCenter main menu, choose **Configure > Set Values.** The Configure Library dialog box appears (Figure 7-3).

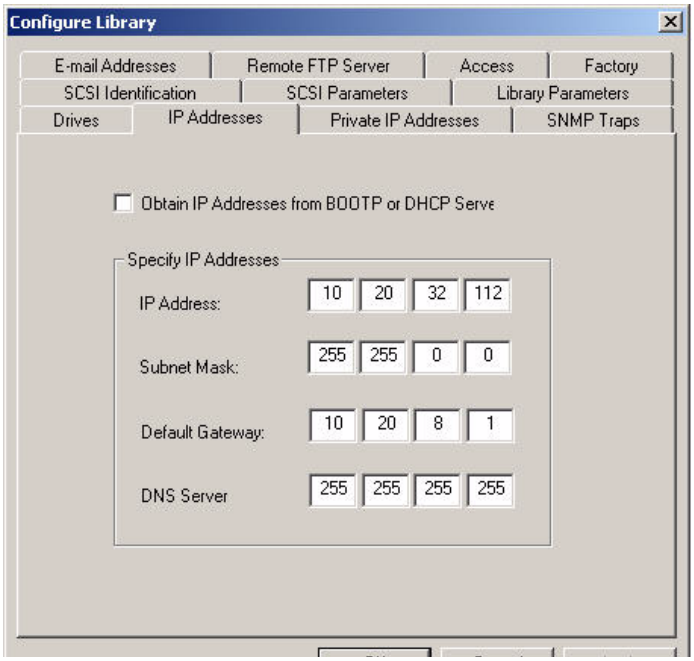


Figure 7-3: Configure Library Dialog Box—IP Addresses Tab

IP Addresses Tab

Use the IP Address tab to set the IP addresses used to access WebTLC.

NOTE: Configuration addresses are network specific. Contact your network system administrator for the appropriate values.

1. Click the **IP Addresses** tab to bring it to the front.
2. Set the IP addresses by using one of these options:
   - To **automatically** set the addresses, check Obtain IP Addresses from BOOTP or DHCP Server.
   - **Manually** enter the four addresses required in the appropriate fields.
3. Click **Apply** (or **OK** to exit).

Private IP Addresses

This tab is used to display on the pre-set IP addresses for partitioned and multi-module systems.

SNMP Tab

These settings enable the WebTLC to send system events asynchronously to the network.

NOTE: Configuration addresses are network specific. Contact your network system administrator for the appropriate values.

1. Click the **SNMP** tab to bring it to the front (Figure 7-4).

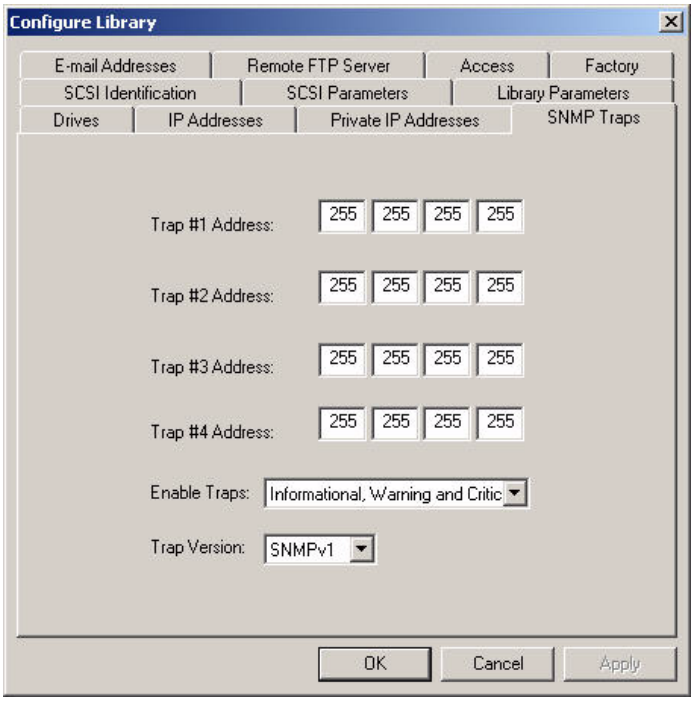


Figure 7-4: Configure Library Dialog Box—SNMP Tab

2. Set the SNMP traps using these options:
   - Enter the IP addresses of up to four hosts that can receive SNMP traps in the **Trap Addresses** fields.
   - Use the **Enable Traps** options to set the type of messages sent.
   - Set the **Trap Version**.
3. Click **Apply** (or **OK** to exit).

E-mail Addresses Tab

These addresses are sent an e-mail upon notification of specific system events.

1. Click the **E-mail Addresses** tab to bring it to the front (Figure 7-5).

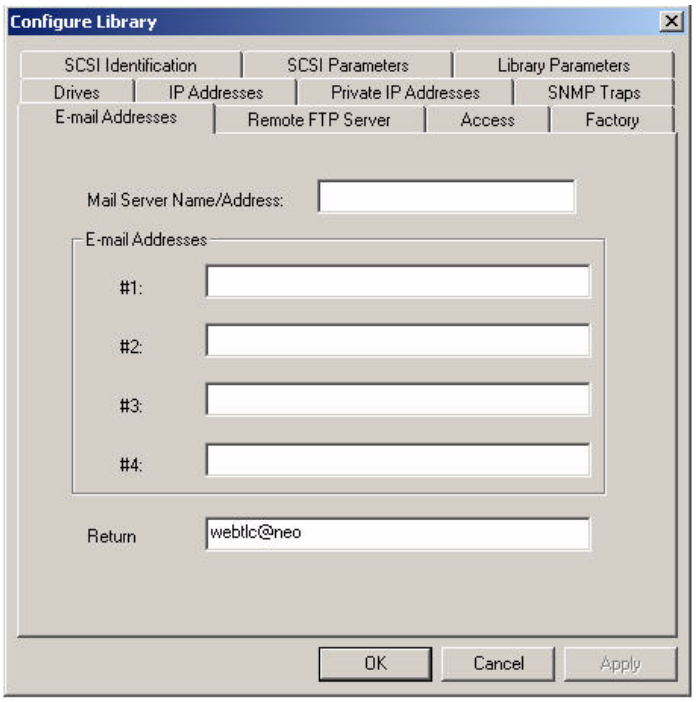


Figure 7-5: Configure Library Dialog Box—E-mail Addresses Tab

2. Configure the e-mail addresses using these options:
   - Designate the SMTP mail server to be used in the **Mail Server Name/Address** field.
   - Specify up to four addresses to receive the e-mails in the **numbered** fields.
   - Replace the default webtlc@neo placeholder address in the **Return** field with your own return e-mail address.
3. Click **Apply** (or **OK** to exit).

SCSI Identification

1. Click the **SCSI Identification** tab to bring it to the front (Figure 7-6).

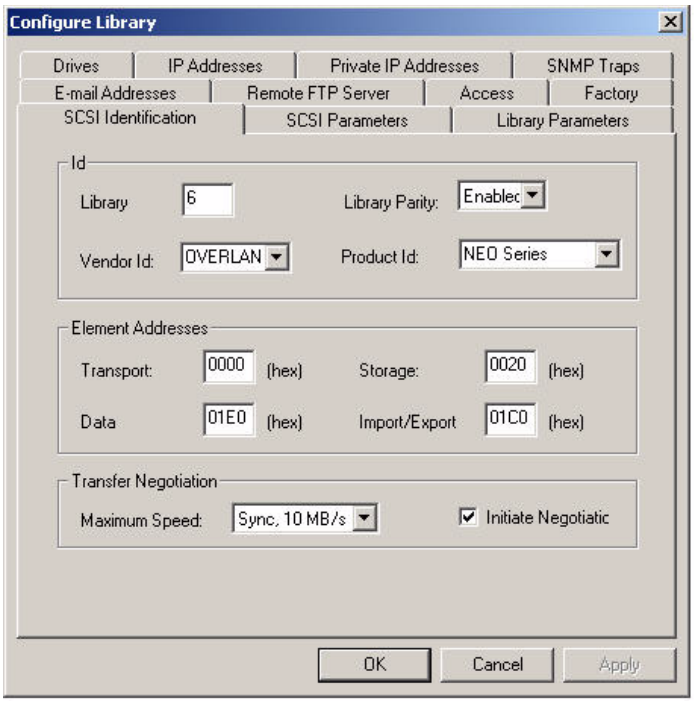


Figure 7-6: Configure Library Dialog Box—SCSI Identification Tab

2. Establish the SCSI ID and settings for the library using these options:
   - In the **ID** area, enter a SCSI ID number and choose from the drop-down lists the parity, Vendor ID, and Product ID.
   - In the **Element Addresses** area, enter the Transport, Storage, Data, and Import/Export addresses in **hexadecimal** code.
   - In the **Transfer Negotiation** area, choose the Maximum Speed from the drop-down list and check the box if you want the library to initiate the negotiation.
3. Click **Apply** (or **OK** to exit).

SCSI Parameters

1. Click the **SCSI Parameters** tab to bring it to the front (Figure 7-7).

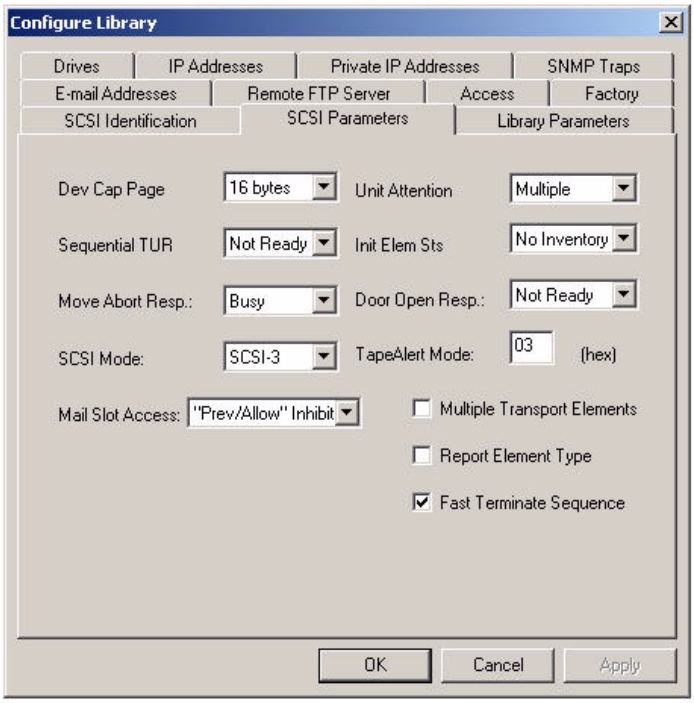


Figure 7-7: Configure Library Dialog Box—SCSI Parameters Tab

2. Set the SCSI parameters using these options:
   - Use the **eight drop-down lists** to choose the basic parameters.
   - Using **hexadecimal** code, enter the **TapeAlert Mode**. The default is Ø3.
   - Check the boxes to activate the **Multiple Transport Elements**, **Report Element Type**, and **Fast Terminate Sequence** options.
3. Click **Apply** (or **OK** to exit).

Library Parameters

1. Click the **Library Parameters** tab to bring it to the front (Figure 7-8).

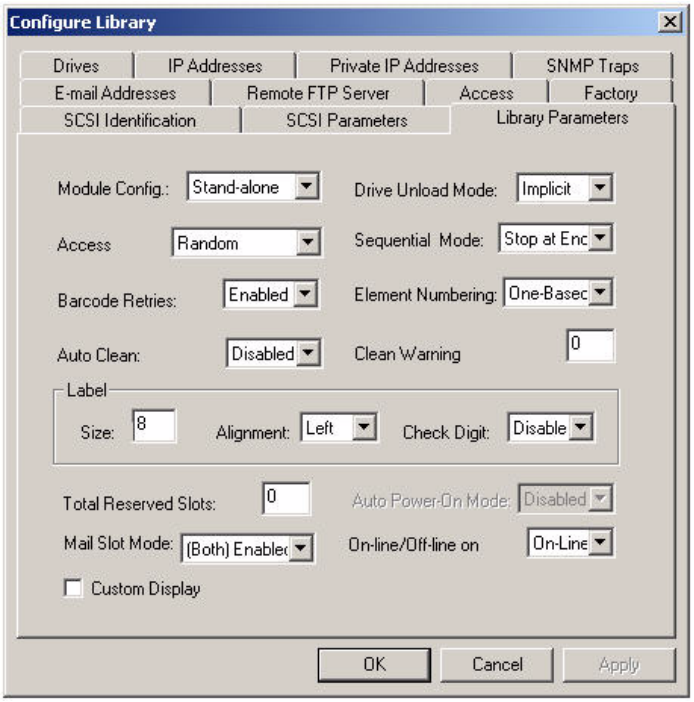


Figure 7-8: Configure Library Dialog Box—Library Parameters Tab

2. Set the general parameters for the library using these options:
   - Use the **nine drop-down lists** to set or change the basic parameters.
   - In the **Label** area, set the size, alignment, and check digit for the bar code label.
   - To reserve slots for cleaning cartridges, enter the **number of slots** in Total Reserved Slots.
   - Check the box to create a **Custom Display** (in the GUI).
3. Click **Apply** (or **OK** to exit).

Drives Tab

1. Click the **Drives** tab to bring it to the front (Figure 7-9).

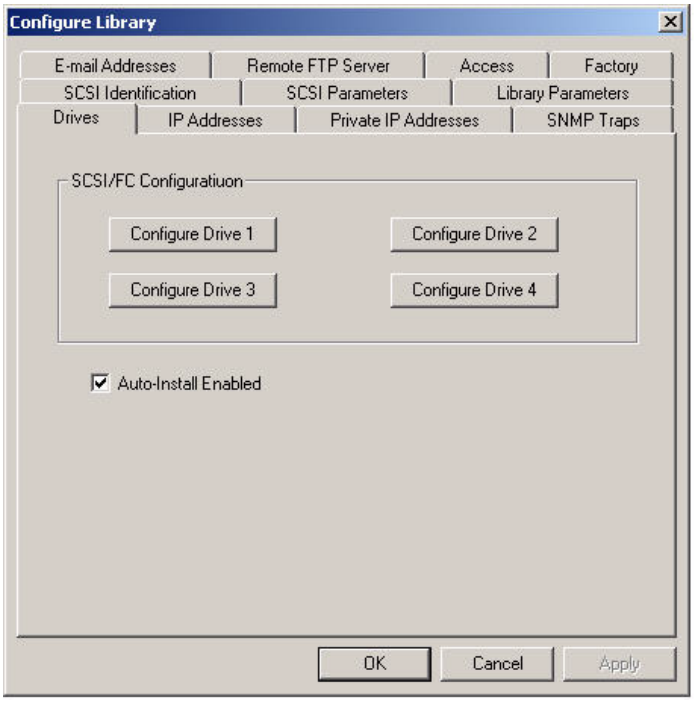


Figure 7-9: Configure Library Dialog Box—Drives Tab (SCSI)

2. If applicable, check the box to activate the **Auto-Install** feature.
3. Set or change the SCSI IDs for the SCSI tape drives or configure FC drives, click the appropriate **Configure Drive *n*** button.

   A Configure Drive *n* screen appears (Figure 7-10 on page 7-11).

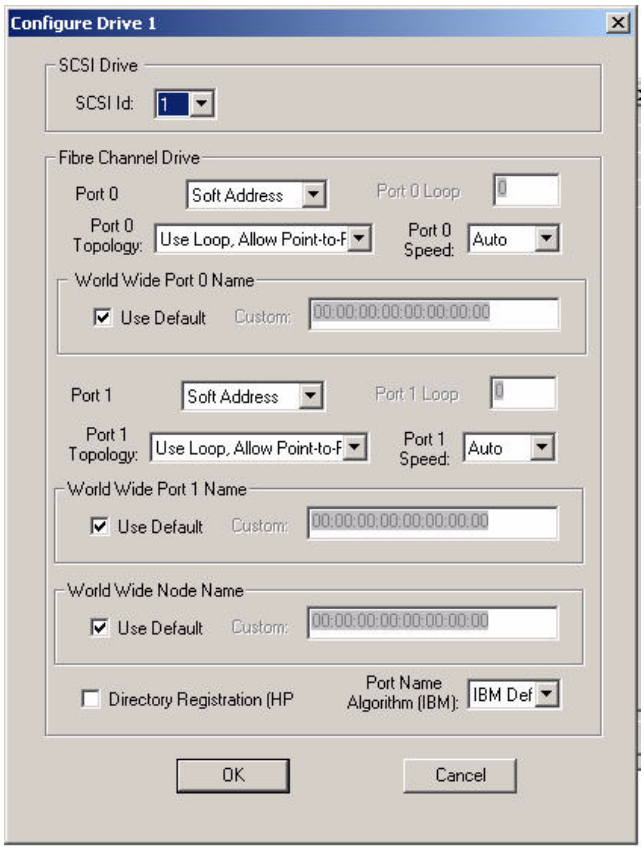


Figure 7-10: Configure Drive n Screen

- SCSI Drive – Select the SCSI ID for the drive.
- FC Drive – Enter the appropriate information in the FC fields.

4. Click **OK** to save the settings and return to the Drive tab.
5. Click **Apply** (or **OK** to exit).

Remote FTP Server Tab

These settings enable the user to download firmware to the WebTLC or to your Library via a remote FTP site. Contact Technical Support for the current User ID and Password to reach Overland Storage's FTP site.

1. Click the **Remote FTP Server** tab to bring it to the front (Figure 7-11).

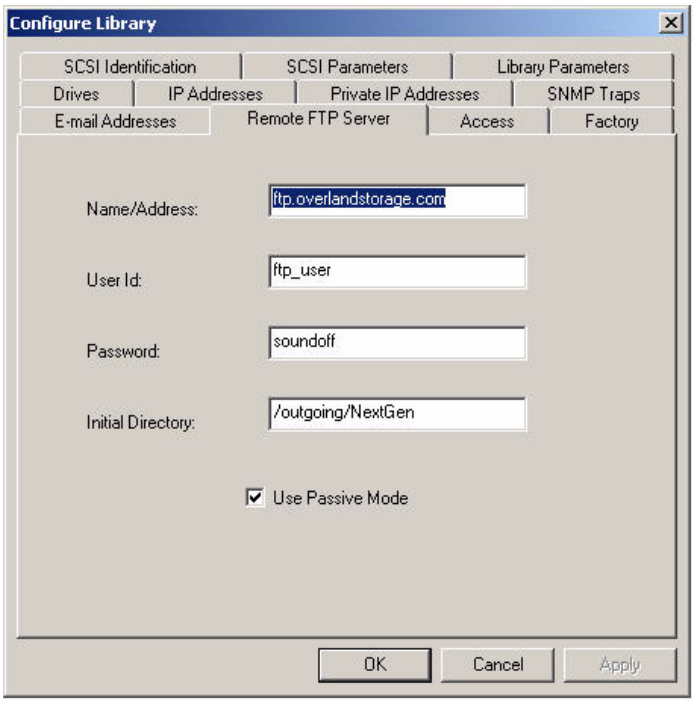


Figure 7-11: Configure Library Dialog Box—Remote FTP Server Tab

2. Set or change the Remote FTP Server settings as needed.

   NOTE: If the default Name/Address has been updated or is unavailable, contact Overland Storage Technical Support.

3. If applicable, check the **Use Passive Mode** box.
4. Click **Apply** (or **OK** to exit).

Access Tab

Since WebTLC permits total control over a library, those capabilities must be limited to the appropriate users. This is managed by passwords set on the NeoCenter configuration screen. There are two different levels of system access available:

- Level 1 access allows an operator to only view library status information.
- Level 2 access allows full control, permitting the user to move tapes and modify library configuration settings.

The Access tab also permits the user to specify a familiar, mnemonic name for your library. This name appears on many pages of your WebTLC site.

1. Click the **Access** tab to bring it to the front (Figure 7-12).

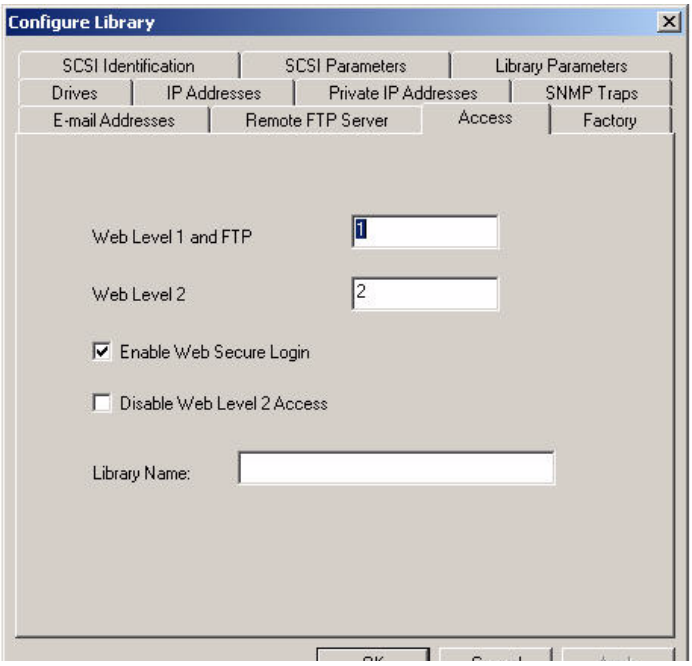


Figure 7-12: Configure Library Dialog Box—Access Tab

2. Change the security access to the library using these options:
   - To enable Level 1 security, enter or change the password in the **Web Level 1 and FTP** field.
   - To enable Level 2 security, enter or change the password in the **Web Level 2** field.
   - To enable secure Internet access, check **Enable Web Secure Login**.
   - To prevent changes to the library remotely, check **Disable Web Level 2 Access**.
   - To create a special name for the library, type the name in the **Library Name** box.
3. Click **Apply** (or **OK** to exit).

Exiting the Configuration Screen

Once you have completed making your configuration settings, you are prompted to confirm these changes as you exit the dialog box.

1. On the Configure Library screen, click **OK**.
   A confirmation prompt appears (Figure 7-13).

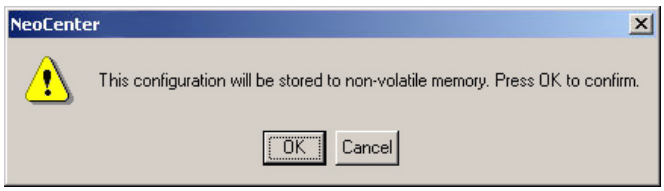


Figure 7-13: Exit Configure Library Dialog Box Conformation

2. Click **OK**.
   A second confirmation screen appears (Figure 7-14).

Figure 7-14: Flash Programming Successful

3. Click **OK**.
   The main NeoCenter screen is displayed.

Uploading Data Files

NeoCenter lets you upload binary data files containing system trace information for diagnostic troubleshooting. The Upload dialog creates binary files that can be saved. The utility also includes a post-processor that converts files into human-readable form, using the text editor of your choice.

1. **Establish communications** with the library, if not already established.
2. Choose **Upload** from the NeoCenter menu.
   The Upload Data From Library prompt appears (Figure 7-15 on page 7-15).

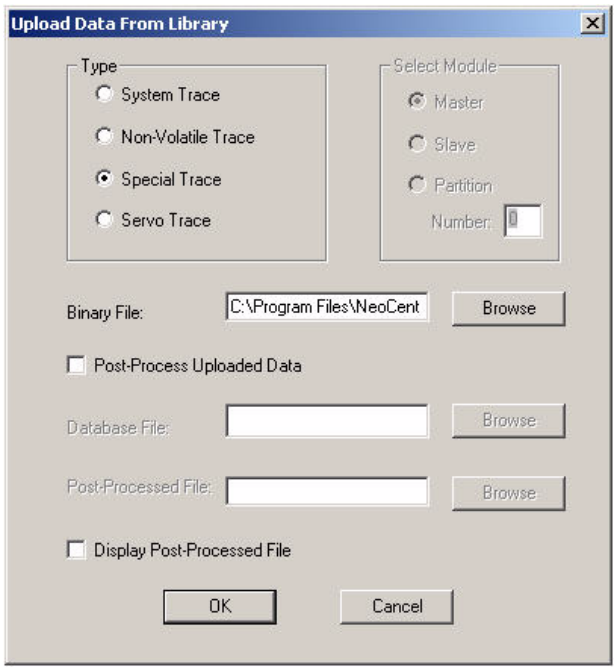


Figure 7-15: Upload Data From Library Screen

3. Set or change upload settings using these options:
   - Select the **Type of trace** by clicking the System Trace, Non-Volatile Trace, Special Trace, or Servo Trace button.
   - If necessary, select the **library being traced** from the Select Module area. If tracing a partition, enter the Partition Number.
   - Click the **Binary File Browse button** to select a network destination for the uploaded binary file.

     The default file name at the end of the network path appears in the Binary File field. You can insert the cursor into the field to rename the file.
   - To create a text version of the file, check **Post-Process Uploaded Data**.
   - To decode the uploaded file into text, use the **Database File Browse button** to select **NextGen.tdb**.
   - Use the **Post-Processed File Browse button** to select a destination for the decoded text file.

     The default file name at the end of the specified network path appears in the Post-Processed File field. You can insert the cursor in the field to rename the file.
4. Click **OK** to start the upload.
5. When the upload is complete and you checked Display Post-Processed File, your selected text editor launches and displays the **text version** of the file. Close the window after reviewing the file.

Downloading Data Files

Overland Storage periodically updates NEO library firmware with enhancements. Using NeoCenter, you can download image files containing updated firmware into the library flash memory. The download process takes place in three stages—the data downloads into RAM, its checksum is verified, and then it is programmed into the flash memory.

To download new firmware using NeoCenter:

1. Establish communications with the library, if not already established.
2. Choose **Download** from the NeoCenter menu.
   The Download Data to Library prompt appears (Figure 7-16).

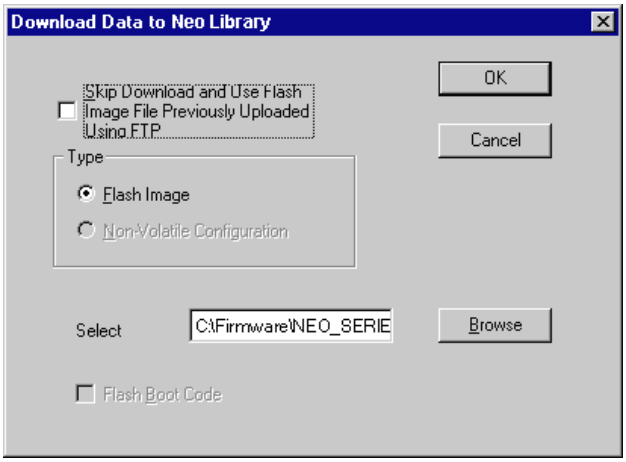


Figure 7-16: Download Data to NEO Library Prompt

3. Click **Browse** to locate the firmware binary image file you want to download, and select it by clicking **Open**.
4. Click **OK** to start the download.
   A Download Progress screen appears. The screen displays a percent bar that tracks the process of the download into RAM and then the checksum verification.
   When the download ends, another percent progress screen immediately appears. It tracks the flash programming. Finally, when the programming is complete and the library is rebooting, a confirmation screen appears (Figure 7-17).

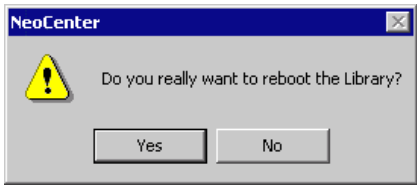


Figure 7-17: Firmware Update Confirmation Screen

5. Click **OK** to return to the main NeoCenter screen.

NOTE: If flash programming does not complete, check all cable connections and repeat the download steps. If it fails a second time, contact Overland Storage Technical Support.

Viewing Library Information

The Info option displays a screen showing the basic information about the library.

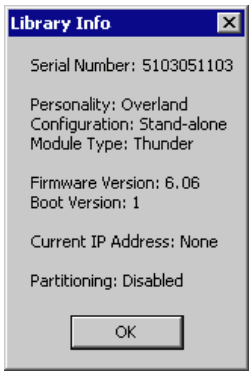


Figure 7-18: Library Info Screen

Generating a Post-Process Report

Sometimes it is beneficial to generate a trace log to view the status of the library and some or all of its components. This is handled using the Post-Process option.

1. Establish communications with the library, if not already established.
2. Choose **Post-Process > Select Text Editor** from the NeoCenter menu.
   The Select Text Editor screen appears (Figure 7-19).

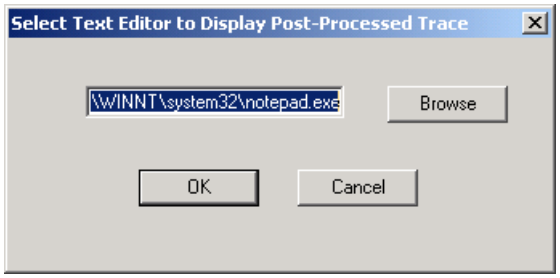


Figure 7-19: Post-Process Select Text Editor Screen

3. Use the **Browse** button to select the application that will be used to view the trace log, then click **OK**.
   Notepad is the default application.
4. Choose **Post-Process > Select Files** from the NeoCenter menu.
   The Select Files screen appears (Figure 7-20 on page 7-18).

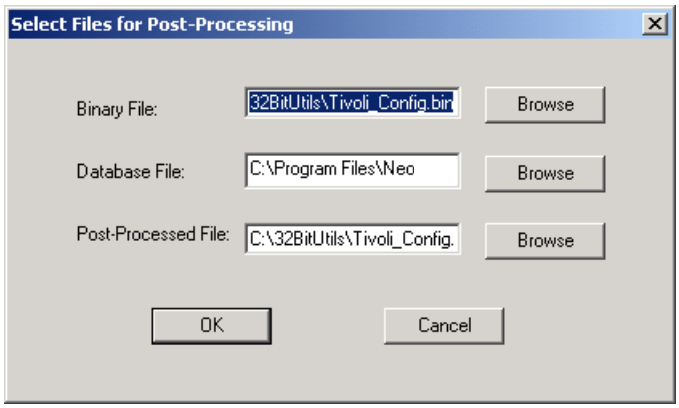


Figure 7-20: Post-Process Select Files Screen

5. Use the **Browse** buttons to select the binary, database, and post-processed files used for the trace log, then click **OK**.
6. Choose **Post-Process > Process and Display** from the NeoCenter menu. Notepad opens and the trace log is shown (Figure 7-21).

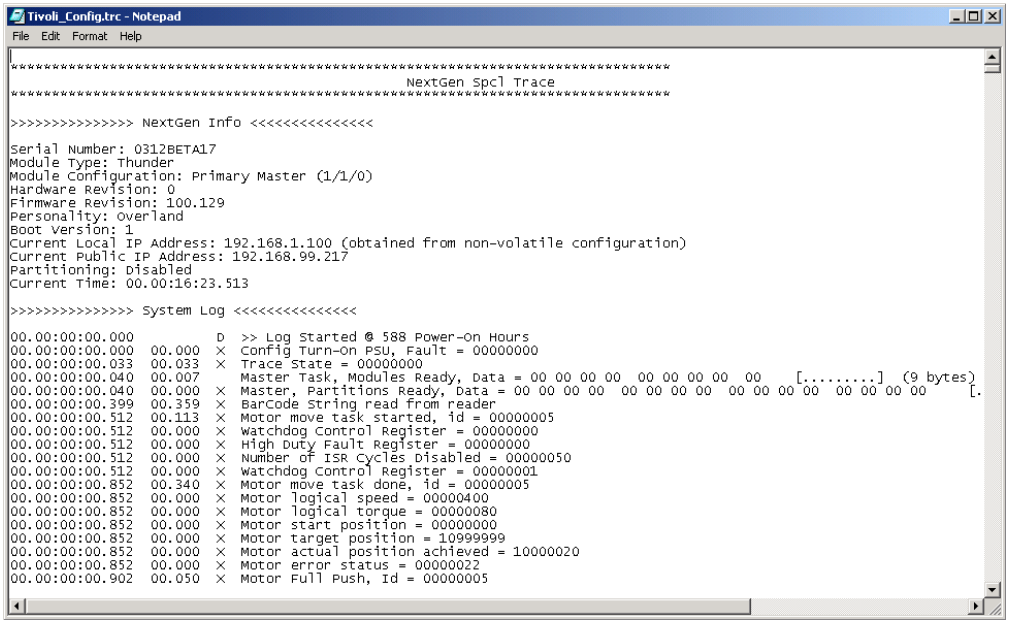


Figure 7-21: Post-Process Trace Screen

7. Close **Notepad** to view the graphs displayed (Figure 7-22) in the NeoCenter window.

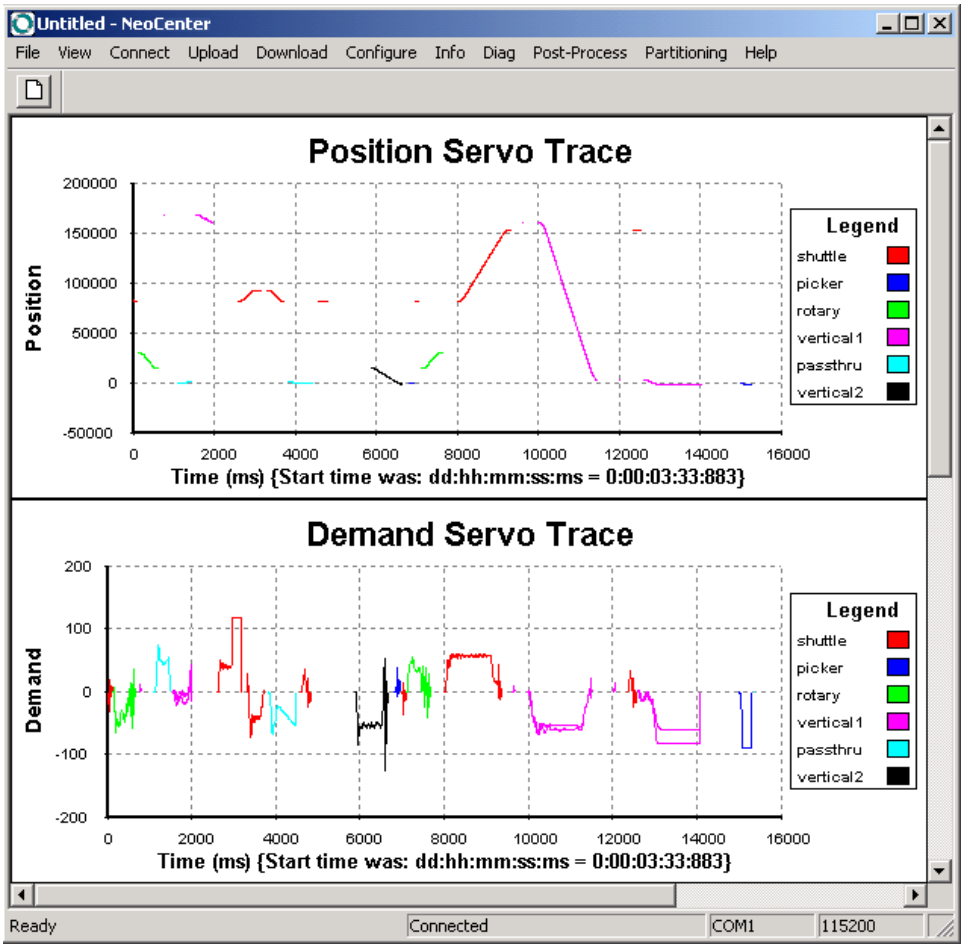


Figure 7-22: Post-Process Display Screen

Rebooting The Library With NeoCenter

If it becomes necessary to reboot the library, this can be accomplished using the NeoCenter program.

1. **Establish communications** with the library, if not already established.
2. From the **Diag** menu, choose **Reboot**.

   A confirmation dialog box appears (Figure 7-23), asking if you want to reboot.

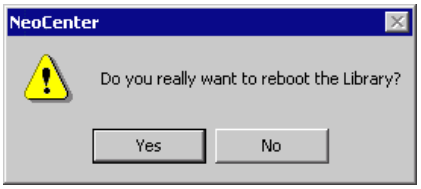


Figure 7-23: Reboot Confirmation Dialog Box

3. Click **Yes**.

   A library rebooting message box appears (Figure 7-24).

Figure 7-24: Library Rebooting Message

4. Click **OK**.

The library disconnects as it reboots. You must manually reestablish communications to continue using NeoCenter with the library.

CHAPTER 8

Maintenance

Most backup software now manages the automatic cleaning of library tape drives as a normal part of operations. It is recommended to use that process if available. If it doesn't exist, the NEO library has options to either manually or automatically clean a tape drive.

IMPORTANT: The Maintenance option is designed for use by Overland Authorized Service Technicians. With the exception of Clean Drive and Configure Capacity, it is not recommended for access by end users.

There are two ways to manage the cleaning of the installed tape drives:

- Manually, by pressing the Clean Drive option located under **Menu > Maintenance**.
- Automatically, by enabling Auto Clean Mode available under **Menu > Library Options**.

CAUTION: Perform a Clean Drive option **ONLY** when the library displays a message informing you that a drive needs cleaning. Because a cleaning cartridge is abrasive, excessive cleaning can shorten the life of a drive.

Manually Running a Cleaning Cartridge

A cleaning cartridge can be installed and run from one of three locations:

- Mail Slot - This location has the advantage of not needing to use a data cartridge slot or to reserve a cleaning cartridge slot.
- Data Cartridge Slot - This location requires inserting a cleaning cartridge into a data cartridge slot and then removing it after cleaning.
- Reserved Slot - This location requires reserving a Data Cartridge Slot for exclusive use as cleaning cartridge slot. The advantage with this method is that the cleaning cartridge is stored in the library and is always available for use. It only needs to be handled when the cartridge needs to be replaced. See Total Reserved Slots under "Library Options Button (View System Data)" on page 5-11 for more information.

NOTE: When pressing the Source or Cleaning locations, you can repeatedly press the **Element Type button** to cycle through all the available choices. You can also use the Decimal Keypad to enter the choice number directly into the field.

Running a Cleaning Cartridge from the Mail Slot

1. Install a **cleaning cartridge** into a Mail Slot.
2. From the GUI screen, press **Menu > Maintenance > Clean Drive**.
3. Press the **Source** field and then press **Mail Slot**.
4. Press the **Cleaning** field and press **Drive** in the Destination Element Type area until the drive needing cleaning is shown.
5. Press **Execute Clean**.

   When the cleaning cycle completes, the library returns the cleaning cartridge back to the Mail Slot magazine and the display returns to the Maintenance options screen.
6. Press **Back** twice to return to the Default screen.
7. Use the **Mail Slot Access** option to remove the cleaning cartridge.

Running a Cleaning Cartridge from a Data Cartridge Slot

1. Install a **cleaning cartridge** into a data cartridge slot (Slot 4, for example) using the Mail Slot or Magazine Access options.
2. From the GUI screen, press **Menu > Maintenance > Clean Drive**.
3. Press the **Source** field and then press **Slot** until the slot with the cleaning tape is shown.
4. Press the **Cleaning** field and then press **Drive** until the drive needing cleaning is shown.
5. Press **Execute Clean**.

   When the cleaning cycle completes, the library returns the cleaning cartridge back to the designated slot and the display returns to the Maintenance options screen.
6. Press **Back** twice to return to the Default screen.
7. Remove the cleaning cartridge.

Running a Cleaning Cartridge from the Cleaning Slot

1. Reserve one or more cleaning cartridge slots using **Menu > Library > Total Reserved Slots**.
2. Install a **cleaning cartridge** into a reserved slot.
3. From the GUI screen, press **Menu > Maintenance > Clean Drive**.
4. Press the **Source** field and then press **Cleaning Slot**.
5. Press the **Cleaning** field and then press **Drive** until the drive needing cleaning is shown.

6. Press **Execute Clean**.

   When the cleaning cycle completes, the library returns the cleaning cartridge back to the designated cleaning slot and the display returns to the Maintenance options screen.

7. Press **Back** twice to return to the Default screen.

Automatically Running a Cleaning Cartridge

You can configure the library to automatically run the cleaning cartridge mode. If a tape drive needs cleaning, after it completes an unload operation, it sends a cleaning needed message to the library. This activates the automatic cleaning cycle provided a cleaning cartridge slot has been reserved with a cleaning tape in it.

To automatically run a cleaning cartridge using Auto Clean Mode:

1. Reserve one or more cleaning cartridge slots using **Menu > Library > Total Reserved Slots**.
2. Install a **cleaning cartridge** into a reserved slot.
3. Enable automatic cleaning using **Menu > Library > Auto Clean Mode > Enabled**.

Replacing a Cleaning Cartridge in a Reserved Slot

When a tape drive detects an expired cleaning cartridge, a message appears on the front panel display. It is then necessary to replace the cleaning cartridge.

1. Use the Status screen to verify that the **cleaning cartridge** has been unloaded from the tape drive.

   If necessary, unload it using the Move Media menu option.

2. Move the expired cartridge to the **Mail Slot**.
3. Press **Mail Slot Access**.
4. Remove the **Mail Slot magazine** from the library.
5. Remove the expired cartridge, **mark it "EXPIRED,"** and then properly dispose of it.
6. Place a **new cleaning cartridge** in the Mail Slot magazine.
7. Insert the **Mail Slot magazine** back into the library.
8. If the cleaning cartridge did not reside in the Mail Slot magazine, use **Move Media** to move it to its proper place.

CHAPTER 9

Troubleshooting

Introduction

This chapter describes the error messages and descriptions that may be displayed when there is a possible malfunction, including:

- Platform problems
- General drive errors
- Error recovery
- Fault Symptom Codes (FSCs)

Platform Problems

An incorrect installation or configuration can cause platform problems. In this case, the library appears to be operating normally, but no data can be interchanged. You also might or might not get an error code on the Graphical User Interface (GUI) touch screen. To identify an error caused by this type of problem, check your installation and configuration setup. See Chapter 2, "Installation and Setup," for information on how to correctly install and configure the library.

General drive errors usually result from a miscommunication between the library and tape drive or a mechanical malfunction within the library. Both platform problems and general drive errors display an error message and a Fault Symptom Code (FSC) on the GUI touch screen. Use an FSC to report errors to your service provider, or in some cases, to determine a recovery procedure.

Error Recovery

Figure 9-1 outlines the recommended steps for error recovery. You should follow this chart in all cases.

Error Recovery Procedures (ERPs) are listed in detail in Table 9-1 on page 9-3; FSCs are listed in Table 9-2 on page 9-3 along with their related ERPs.

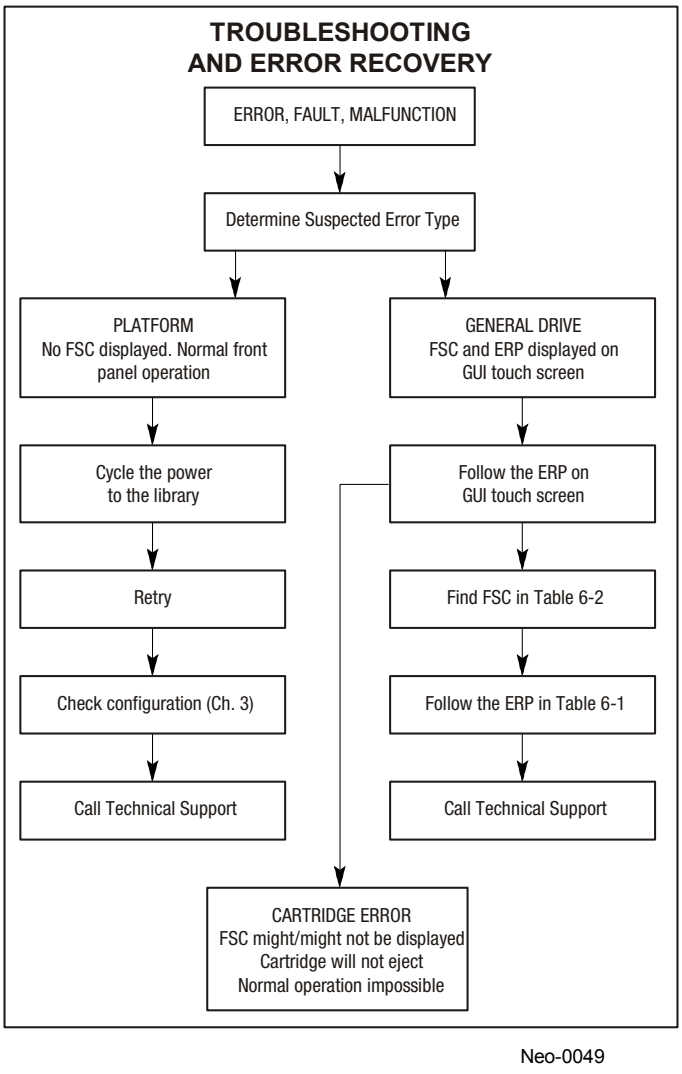


Figure 9-1: Troubleshooting Flow Chart

Error Recovery Procedures

Table 9-1 lists ERPs for errors reported on the GUI touch screen of the library. This list includes only those procedures that can be safely performed by an end user.

Table 9-1: Error Recovery Procedures

ERP Code	Procedure/Description
C	Cycle power to the library using the Power option on the GUI touch screen. Wait 30 seconds to power on again.
D	Turn off power to the library and inspect connectors and cables.
F	Invalid operation. Select parameters correctly and try again.
G	Call Technical Support.

Fault Symptom Codes (FSCs)

FSCs that appear on the GUI touch screen are described in the below tables, Chapter 4, "Daily Operations." A descriptive message and instructions for clearing the fault accompany each FSC. If a fault persists, look up the FSC in Table 9-2 to determine the error recovery procedure or to report it to your service provider.

Table 9-2: Fault Symptom Codes

Message	FSC	ERP	
NvRAM Update Error	0306	G	The non-volatile configuration area in flash memory could not be updated (programming error).
Bar Code Not Active Error	0501	D,G	The hardware could not detect a barcode reader.
OS Catastrophic Error	0901	G	Catastrophic Smx operating system error - task creation error, unexpected error.
OS Task Exit Error	0902	G	SmxNet (Ethernet, WebTLC) task error - server spawn error, TCP/IP fatal error.
Invalid Ethernet (MAC) Address	0A01	F	The library's Ethernet (MAC) address stored in the non-volatile configuration is not valid - the last 3 octets are either 0:0:0 or 255:255:255.
Invalid IP Subnet Mask (255.255.255.255)	0A02	F	The Ethernet subnet mask stored in the non-volatile configuration is not valid - 255.255.255.255.
SCSI Firmware Error	1001	D,G	Internal SCSI task processing error - unexpected state or hardware status.
SCSI FIFO Empty	1002	D,G	The SCSI controller data FIFO is empty but should contain more data bytes.
SCSI FIFO Error	1003	D,G	The SCSI controller data FIFO should be empty but still contains data bytes.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
SCSI Gross Error	1004	C,D,G	The SCSI controller detected a gross error condition - invalid SCSI bus phase or DMA error.
Illegal SCSI Cnt Cmd	1005	C,D,G	Either an invalid command was sent to the SCSI controller, or the controller was not in the correct mode.
SCSI Invalid Element	1007	D,G	Internal SCSI task processing error - invalid element type was detected
SCSI Invalid Int.	1009	D,G	The SCSI controller posted an invalid interrupt status.
Loader Not Ready	2004	C,G	Fail to fetch, stow, scan, move pass-through, or when loader detects invalid command, aborts command.
Door Open (status only)	2009	F	Door is forced open or door sensor failed.
Cart Unaccessible	200C	F	For a DLT drive, fail to operate drive handle in unloaded state. For a SDLT, indicates the tape is NOT in the unloaded state. For an LTO, indicates the tape is not ejected. Cartridge in drive is not accessible from changer.
Drive In Error	200D	C,G	A general drive error detected by control task.
No Magazine	200E	F	Cannot move, element not installed, from changer.
Removal Prevented	200F	F	Receive medium prevent removal from drive for a fetch.
Ctl. Firmware Error	2010	C,G	Internal inter task processing error. Unexpected event. SMX send or receive error.
Drive Time-out Error	2030	C,G	Can't communicate with DLT drive.
Drive Code Update Command Error	2080	C,G	Update code from SCSI or from TAPE failed.
Move Command Failure	2081	C,G	Move command from / to drive slot failed, detected by control task.
Open Mail Slot Fault	2090	C,G	Door open sensor time-out detected when open door.
Open Left Door Fault	2091	C,G	Door open sensor time-out detected when open door.
Open Right Door Fault	2092	C,G	Door open sensor time-out detected when open door.
Open Doors Fault	2093		Door open sensor time-out detected when open door.
Open DLT Handle Fault	2094	C,G	Failed to open DLT handle.
No IP Address Found	20a0	C,G	SMC router failed to get an IP address.
No IP Address Mode Fault	20a1	C,G	SMC router failed to detected static or ip address Mode.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Unknown exchange for the async message	20b0	C,G	Unexpected exchange detected when process Messages.
Drive In Error	20c0	C,G	Control failed to set SCSI id.
Drive In Error	20c1	C,G	Control failed to installed drive.
Motor Fault Condition	3000	C,G	One of the motors has been disabled and could not be re-enabled.
Picker Tach Errors	3002	C,G	Picker Tach errors were detected when checking slots.
Bin Fetch Failure	3011	C,G	Loader failed to fetch a cartridge from a bin.
Drive Fetch Failure	3013	C,G	Loader failed to fetch a cartridge from a drive.
Drive Timeout Failure	3015	C,D,G	Loader detects unload command time-out.
Drive Status Failure	3016	C,D,G	Detected drive error from fetch, stow and wait for handle ok DLT drive operation.
Drive In Flux Timeout	3017	C,D,G	Time out waiting for drive to clear the flux status.
Drive Load Retry Failed	3018	C,G	LTO drive fail to load, detected in drive task.
Drive Open Door Failed	3019	C,G	Failed open DLT drive door.
Drive Close Door Failed	301A	C,G	Failed close DLT drive door.
Drive Communication Error	301B	C,D,G	Intertask send, receive failed.
Drive Get General Status Fail	301C	C,D,G	Drive communication failed.
Drive Get Status 3 Fail	301D	C,D,G	NOT USED
Undefined Config	3020	C,G	In loader, unexpected configuration, not a NEO 2000 or NEO 4000.
Orphan Cartridge not flowed	3030	C,G	The loader could not successfully stow an orphan cartridge to a bin.
Chassis S/N Mismatch. Previous S/N retained	3031	G	The serial number scanned from the barcode label doesn't match the value stored in non-volatile memory.
Chassis S/N Character count is not correct	3032	G	A valid serial number barcode label could not be read.
Chassis S/N did not scan	3033	G	A valid serial number barcode label could not be read
Chassis S/N save operation failed	3034	G	The serial number scanned from the barcode label could not be saved to non-volatile memory.
Motor Firmware Error	3040	C,G	The loader task detected an unexpected status and could not recover (internal target error).
Loader Received Invalid Command	3041	C,G	The loader task received an unexpected command and could not recover (internal target error).
Motor Firmware Error	3042	C,G	The loader task detected an unexpected status and could not recover (internal target error).
Missing Magazine	3050	F	No magazine installed for diagnostics to run.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
No Cartridges In Library	3051	F	No cartridge available for diagnostics to run.
Too Many Cartridges	3052	F	Unable to run cart or drive cycle, loader is full with cartridges.
Need 1 Drive Minimum	3054	F	No available drive to run diagnostics.
Invalid Magazine Type	3057	F	Unsupported magazine type detected.
Magazine Type Change Not Handled	3058	F	Unsupported magazine type detected.
Drive Type Not Supported	3059	F	Unsupported drive type detected.
Diag Fetch, Drive not loaded	305b	F	No cartridge present for a fetch.
Diag Time-out waiting for drive empty, ready	305d	F	Fetch, time-out waiting for drive unload.
Invalid bin number	305f	F	Invalid bin number detected in diagnostics.
Zone Sequence Error	3060	C,G	Eject command time-out.
Drive 0 Eject Failed	3074	C,G	Eject command time-out.
Drive 1 Eject Fail	3075	C,D,G	Eject command time-out.
Drive 2 Eject Fail	3076	C,D,G	Eject command time-out.
Drive 3 Eject Fail	3077	C,D,G	Eject command time-out.
Diag get drive 0 status failed	3078	C,D,G	Failed to get drive status, communication error.
Diag get drive 1 status failed	3079	C,D,G	Failed to get drive status, communication error.
Diag get drive 2 status failed	307a	C,D,G	Failed to get drive status, communication error.
Diag get drive 3 status failed	307b	C,D,G	Failed to get drive status, communication error.
Drive Stow Failed, Media Returned to Source	3082	F	The DLT drive detected an SDLT cartridge and the cartridge has been returned to its origin.
Drive Stow Failed, Media Remains in Drive	3083	F	The DLT drive detected an SDLT cartridge but the cartridge could not be returned to its origin.
UnSupported Drive For Requested Operation	3084	F	Unsupported drive type.
No Retry On Fetch/Stow	308F	F	The loader retried an operation and retries were disabled.
Picker Jammed	3100	C,G	The picker jammed during loader initialization
Picker Jammed 2	3102	C,G	The picker jammed during a bin stow operation.
Picker Jammed 3	3103	C,G	The picker jammed during a bin stow operation.
Picker Jammed 4	3104	C,G	The picker jammed during a bin stow operation.
Picker Jammed 5	3105	C,G	The picker jammed during a bin stow operation.
Picker Jammed 6	3106	C,G	The picker jammed during a bin stow operation.
Picker Jammed 7	3107	C,G	The picker jammed during a pass-through fetch operation.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Picker Jammed 8	3108	C,G	The picker jammed during a pass-through fetch operation.
Picker Jammed 11	310B	C,G	The picker jammed during a drive fetch operation
Picker Jammed on Stow	310F	C,G	The picker jammed on a stow operation.
Picker Retries Exceeded 1	3111	C,G	Picker retries exceeded during a pass-through fetch operation.
Picker Retries Exceeded 3	3113	C,G	Picker retries exceeded during a bin stow operation.
Picker Retraction Error	3115	C,G	The picker did not retract during a bin check operation.
Shuttle Jammed	3200	C,G	The shuttle could not reach the target location.
Rotary Jammed	3300	C,G	The rotary track could not reach the target location.
Shuttle on Wrong Side Of The Rotary	3301	C,G	The zone indicators show that the shuttle is backwards on the rotary track during power-up initialization.
Passthrough Elevator Jammed	3400	C,G	The pass-through shuttle could not reach the target location.
Vertical Elevator Jammed	3500	C,G	The vertical elevator could not reach the target location (4000 Series only).
All Slots Empty	5011	F	There are no cartridges installed in any of the reserved cleaning slots.
DLT Already Loaded	5014	F	The cleaning operation failed because the drive already has a cartridge inserted.
Expired Clean'g Cart	5015	F	The cleaning operation failed due to an expired cleaning cartridge.
Not a Clean'g Cart	5016	F	The cleaning operation failed because the loaded cartridge is not a cleaning cartridge.
DLT Timeout Error	5035	C,D,G	The cleaning operation failed because the drive timed out.
Move Command Fail	503B	F	A front panel move operation failed.
Clean Operation Timeout	503C	F	The cleaning operation failed because the drive timed out.
Drive Status Fail	503D	F	The cleaning operation failed because the library could not retrieve drive status.
Command response from unexpected source	7001	D,G	A command response was received from a task to which a command had not been sent.
Control command execution failed	7002	D,G	A command response opcode from the Control task was not anticipated or is un-identifiable.
Control response not matched to a known command	7003	D,G	A command response was received from the Control task, but the original command opcode could not be determined.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Loader response not matched to a known command	7004	D,G	A command response was received from the Loader task, but the original command opcode could not be determined.
Drive response not matched to a known command	7005	D,G	A command response was received from a Drive task, but the original command opcode could not be determined.
Flash response not matched to a known command	7006	D,G	A command response was received from the Flash task, but the original command opcode could not be determined.
Drive index on Update Status message was invalid	7007	C,D,G	An Update Drive Status message was received from a module, but the drive index was out of range.
The Drive response was not expected	7008	C,D,G	A command response was received from a Drive task to which a command had not been sent.
The opcode for a WORD message was unknown	7009	C,D,G	A WORD-sized message was received but the message opcode could not be identified.
The opcode for a DWORD message was unknown	700A	C,D,G	A DWORD-sized message was received but the message opcode could not be identified.
The button causing library to go offline was unknown	700B	C,D,G	A command to take the library offline was completed successfully, but the GUI button that initiated the action could not be identified.
Destination Xchg was Null	700C	C,G	Attempting to send a command to a task, but the argument exchange pointer was NULL.
Sending of a cmd failed	700D	C,G	An attempt to place a command on a task exchange failed.
Deactivating a drisve that is not attached	700E	C,G	The Control task is indicating that a request to deactivate a drive failed because the drive is not attached.
Deactivation of a drive failed	700F	C,G	The Control task is indicating that a request to deactivate a drive failed; reason is not known.
Drive removal failed	7010	C,G	The Drive task is indicating that a request to power-down a drive failed; reason is not known.
Drive is Active failed	7012	C,G	The Drive task is indicating that a request to determine if a drive is executing a host command failed; reason is not known.
Control Com Unidentified	7013	C,G	During Hot Swap, a command response from the Control task could not be associated with any outstanding command.
Drive status update failed	7014	C,G	The Drive task is indicating that a request to determine the current state of a drive failed; reason is not known.
Loader command execution failed	7015	C,G	The Loader task is indicating that a command has failed to complete successfully.
Sequential command execution failed	7016	C,G	The Sequential task is indicating that a command has failed to complete successfully.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Destination Xchg for msg. was Null	7017	C,G	Attempting to send a message to a task, but the argument exchange pointer was NULL.
Bad src mod in peg msg	7018	C,G	A message was received from a remote module, but the module number was out of range.
A Peg message has a pointer to NULL	7019	C,G	Peg message wrapping a Null msg. partner
Xchg conversion failed	701A	C,G	Attempt to determine the module number containing the task that is returning a command response failed.
Invalid L-drive number to convert	701B	C,G	Attempt to send a command to a drive, but the logical drive number is out of range.
Invalid P-drive number to convert	701C	C,G	Attempt to send a command to a drive, but the physical drive number is out of range.
Invalid mod number to convert	701D	C,G	Attempt to send a command to a drive in a remote module, but the module number is out of range.
Unknown drive type	701E	C,G	Attempt to show detailed drive status of a drive whose type is unknown.
The SCSI response was not expected	701F	C,G	The command response from the SCSI task in a remote module was unexpected.
The Flash response was not expected	7020	C,G	The command response from the Flash task in a remote module was unexpected.
SCSI response not matched to a known command	7021	C,G	A command response was received from a SCSI task, but the original command opcode could not be determined.
Unexpected state after NonVolConfig cmd	7022	C,G	After successfully completing a NonVolConfigPut command, the current state of the save operation was unknown.
Unexpected state after SCSI mode cmd	7023	C,G	After successfully completing a ScsiUpdateModeParameters command, the current state of the save operation was unknown.
Unexpected state after SCSI init cmd	7024	C,G	After successfully completing a ScsiInitcommand, the current state of the save operation was unknown.
Cartridge reject recovery failed	8001	C,D,G	The DLT drive failed to successfully load a tape even after retries.
Drive Fan stalled	8002	C,D,G	The fan in the drive hot-swap shoe is either not installed or has stalled.
Drive load did not complete	8003	C,D,G	The drive failed to successfully load a tape.
Invalid drive was installed	8004	F	One or more installed drives are of a type either unknown or not supported in the current library personality.
LTO unmask drive failed	8005	F	The LTO drive unmask operation failed.
LTO mask drive failed	8006	F	The LTO drive mask operation failed.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
LTO unload drive-in load retry) failed	8007	F	The LTO drive failed to unload a cartridge during a load retry operation.
Is Drive Unloaded Failed	8008	F	The LTO drive failed to return status when being polled for unloaded state.
Orphan cartridge recovery failed	9001	C,D,G	The master module could not successfully return an orphan cartridge to a slot location.
Master pass-through opto failed.	9003	C,D,G	The master module opto sensor was not detected during the power-up pass-through module inventory.
SMX send error	A001	C,G	An attempt to place a message on a task's exchange generated a kernel error.
SMX receive error	A002	C,G	An attempt to receive a message from a task's exchange generated a kernel error.
Comm free list empty	A003	C,G	An attempt to acquire a message from the free pool failed because the pool is empty.
Invalid comm. put attempt	A004	C,G	An attempt to place a message on a task's exchange failed because either the argument message pointer was NULL or the argument exchange pointer was NULL.
Invalid comm. get attempt	A005	C,G	An attempt to receive a message from a task's exchange failed because the argument exchange pointer was NULL.
Comm initialization error	A006	C,G	The Comm manager could not be initialized at power-up because system is out of memory.
Put of a NULL comm.	A007	C,G	An attempt to place a Comm block on a task's exchange failed the argument Comm block pointer was NULL.
Msg contains no comm.	A008	C,G	A message obtained from the free pool did not contain a Comm block.
Comm return address is unknown	A009	C,G	An attempt to return a command response to the originating task failed because the originator could not be determined.
Bad Image CRC	F001	F	The uploaded firmware image has a bad CRC and is probably corrupted.
Flash erase sector failed	F002	F	One of the flash memory sectors could not be programmed.
Flash program sector failed	F003	C,G	One of the flash memory sectors could not be erased.
Bad flash CRC	F004	C,G	The firmware image programmed into flash memory has a bad CRC and is probably corrupted.
Flash exit error	F005	C,G	Internal flash task error.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Incompatible image	F006	F	The uploaded firmware image is not compatible with the library hardware, possibly an older firmware version.
Buffer allocation failed	F402	F	The flash task could no allocate a buffer area to hold the firmware image to be uploaded.

If an error message appears that is not included in Table 9-2, write down the fault code number and follow the recovery procedure. If the same error occurs again, call your authorized service provider.

APPENDIX
A

Specifications

Hardware Specification

NOTE: Refer to the current NEO SERIES datasheets for capacity and performance numbers.

Specification	NEO 2000	NEO 4000
Host SCSI Interface	LVD/SE	LVD/SE
Number of Drives	1–2	1–4
Number of Cartridges	• 30 (LTO) • 26 (SDLT)	• 60 (LTO) • 52 (SDLT)
MTBF	>250,000 hours Excluding power supply, tape drives, & cooling fans	>250,000 hours Excluding power supply, tape drives, & cooling fans
MSBF	2,000,000 cartridge cycles	2,000,000 cartridge cycles
Design Life	7 yrs. @ 30% duty cycle	7 yrs. @ 30% duty cycle
MTTR	<10 min (most FRU's)	<10 min (most FRU's)
Height (nominal)	18.75 in. (22.25cm), 5U **NOTE:** Rear rack enclosure door (if any) must provide minimum of 6.0" additional clearance, from rear of chassis, for SCSI cables and fan housings.	17.50 in. (44.50cm), 10U
Width	16.7 in. (22.23cm)	16.7 in. (42.40cm)
Depth (with drive handles)	31.0 in. (78.74cm)	31.0 in. (78.74cm)
Weight (approximate)	Unpacked with 2 drives: 66.0 lbs. (30kg) Packaged: 99.0 lbs. (45kg)	Unpacked with 4 drives: 171.0 lbs. (78kg) Packaged: 199.0 lbs. (90kg)

Environmental Specifications

Safety

NEO SERIES 2000 and 4000 Libraries comply with the following regulatory agency product safety specifications:

Agency	Standard
UL Listed Mark	UL 1950, Standard for Safety of Information Technology Equipment
CUL Mark (Canadian UL)	CAN/CSA-C22.2 No. 950, Standard for Safety of Information Technology Equipment
CE Marking (European Union)	Low Voltage Directive, 72/23/EEC, European Union
TÜV GS Mark (Germany)	EN60950, (IEC950) Standard for Safety of Information Technology Equipment, Third addition

Electromagnetic Emissions

NEO SERIES 2000 and 4000 library modules comply with the following EMC compliance specifications:

Agency	Standard
FCC	US Std. 47 CFR, Part 15 Rules, Class A. Notation on Product
Industry Canada	Industry Canada Rules, ICES-003, Class A. Notation on product
CE Marking (European Union)	EMC Directive, 89/336/EEC Laws, relating to electromagnetic compatibility, European Union EN55022, Standard, RFI limits, Information Technology Equipment, Class A EN55024, Information Technology Equipment, Immunity.
VCCI	Class A per CISPR 22, Japan. VCCI statement on product
BSMI (BCIQ)	CNS: 13438, Taiwan. EMC warning and certificate number on product

Temperature, Humidity and Altitude

NON-OPERATING - LONG TERM	Unpacked or Packed
Dry Bulb Temp	-40☐Cto 60☐C
Temp Gradient	20☐C/hr. (across the range)
Temperature Shock	15☐C (over 2 min.)
Wet Bulb Temp	30☐C
Relative Humidity	5% to 95% (non-condensing)
Humidity Gradient	10%/hr
Altitude (sea level)	-1000 ft. to +10,000 ft.
TRANSIT - SHORT TERM	**Packed 7 days**
Dry Bulb Temp	-40☐Cto 60☐C
Temp Gradient	25☐C/hr. (across the range)
Temperature Shock	15☐C (over 2 min.)
Wet Bulb Temp	30☐C
Relative Humidity	5% to 95% (non-condensing)
Altitude (sea level)	-1000 ft. to +10,000 ft.

Shock

OPERATING	Within Spec - No Damage
Peak Acceleration	1.5 G's
Duration	11 ms
Waveshape	1/2 sine pulses
Application	X,Y,Z axes, repeat 3 times
NON-OPERATING	**Unpacked - No damage)**
Peak Acceleration	25 G's
Duration	11 ms
Waveshape	1/2 sine pulses
Application	X,Y,Z axes, repeat 3 times
TRANSIT/STORAGE	**Packed - No damage**
Peak Acceleration	30 G's
Duration	30 ms
Waveshape	1/2 sine pulses
Application	X,Y,Z axes, repeat 3 times
PHYSICAL DROP TEST	**Packaged - No damage**
Drop Test Distance	12 inches (30.5 cm)
Application	Per ISTA (1 time)

Vibration

OPERATING	Within Spec - No Damage
Frequency Range	5-1000-5hz
Peak Acceleration	.25 G's
Waveshape	Sinusoidal, 1 octave/min
Application	X,Y, Z axes, 2 sweeps pers
NON-OPERATING	**Unpacked - No damage)**
Frequency Range	5-1000-5hz
Peak Acceleration	1.0 G's
Waveshape	Sinusoidal, 1 octave/min
Application	X,Y, Z axes, 2 sweeps pers
TRANSIT/STORAGE	**Packed - No damage**
Frequency Range	5-1000-5hz
Peak Acceleration	2.0 G's
Waveshape	Sinusoidal, 1 octave/min
Application	X,Y, Z axes, 2 sweeps pers

Primary Power

Voltage Limits

The NEO SERIES 2000 and 4000 Libraries are capable of using any nominal AC voltage between 100 and 240VAC power, at 50 or 60 Hz. The machines are capable of powering up and operating without error from any voltage within the ranges specified:

Frequency Limits

NEO SERIES 2000 and 4000 Libraries are capable of operation at either 50Hz or 60Hz. The machines will automatically adjust for 50-60Hz primary power operation, without requiring user intervention or modification.

Power Requirements

NEO SERIES 2000 Library, with two tape drives installed, exhibits a nominal steady state AC power consumption of 192watts, and a maximum peak power consumption of 240 watts.

NEO SERIES 4000 Library, with four tape drives installed, exhibits a nominal steady state AC power consumption of 344 watts, and a maximum peak power consumption of 430 watts.

Current	
NEO SERIES 2000	1.6 - 1.0A (120VAC - 240VAC)
NEO SERIES 4000	3.5 - 1.8A (120VAC - 240VAC)

The Thunder library module, with four tape drives installed, shall exhibit a nominal steady state AC power consumption of 568 watts, and a maximum peak power consumption of 622 watts.

Cooling

Forced-air cooling is used to keep the tapes drives, logic devices, motor amplifiers, motors, and power supplies below their maximum allowable temperatures at ambient extremes.

FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Japanese Voluntary Control Council for Interference (VCCI)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Translation. This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

Taiwan BSMI Class A Warning

警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

NEO 2000 Declaration of Conformity

DECLARATION OF CONFORMITY

We, Overland Storage, EMEA
Overland House, Ashville Way
Wokingham, Berkshire
RG41 2PL England, United Kingdom

on our own responsibility, declare that the product:

Kind of equipment:	Magnetic Tape Library
Type designation:	NEO Series 2000 Model x-LXN2x (where x = system configuration prefixes or suffixes)

is in compliance with the following norms and documents:

European Council Directive 89/336/EEC laws relating to electromagnetic compatibility. (EMC Directive)
EN 55022, Radio Frequency Interference limits and measurement, Information Technology Equipment, class A.
EN61000-3-2/A14, Harmonic Emissions.
EN61000-3-3, Fluctuations and Flicker.
EN 55024, Information Technology Equipment - Immunity.

European Council Low Voltage Directive 73/23/EEC
EN 60950 Information Technology Equipment - Safety.

Accredited test laboratory: TUV Product Service
10040 Mesa Rim Drive
San Diego, CA, 92121, USA

Christopher Calisi, President CEO
Manufacturer/Authorized representative, name and signature

02 September 2003
Overland Storage Inc.
4820 Overland Ave.
San Diego, CA, 92123, USA
place and date of issue

NEO 4000 Declaration of Conformity

DECLARATION OF CONFORMITY

We, Overland Storage, EMEA
Overland House, Ashville Way
Wokingham, Berkshire
RG41 2PL England, United Kingdom

on our own responsibility, declare that the product:

Kind of equipment:	Magnetic Tape Library
Type designation:	NEO Series 4000 Model x-LXN4x (where x = system configuration prefixes or suffixes)

is in compliance with the following norms and documents:

European Council Directive 89/336/EEC laws relating to electromagnetic compatibility. (EMC Directive)
- EN 55022, Radio Frequency Interference limits and measurement, Information Technology Equipment, class A.
- EN61000-3-2/A14, Harmonic Emissions.
- EN61000-3-3, Fluctuations and Flicker.
- EN 55024, Information Technology Equipment - Immunity.

European Council Low Voltage Directive 73/23/EEC
- EN 60950 Information Technology Equipment - Safety.

Accredited test laboratory: TUV Product Service
10040 Mesa Rim Drive
San Diego, CA, 92121, USA

Christopher Calisi, President CEO
Manufacturer/Authorized representative, name and signature

02 September 2003
Overland Storage Inc.
4820 Overland Ave.
San Diego, CA, 92123, USA
place and date of issue

APPENDIX

B Partitioning

Overview

Partitioning is a method in which cartridges, magazines, and LTO drives can be "virtually" separated for the convenience or use of the host or host software thus creating "Virtual Libraries." It allows two servers to use the same physical library while maintaining control of their allocated resources.

Library partitioning is based upon representing each partition as a separate SCSI device. To the host, each partition looks like a separate tape library and can have its own interface which can be HVD SCSI, LVD SCSI, or Fibre Channel.

NOTE: Each partition must consist of, at minimum, one tape drive and one media magazine.

Each NEO SERIES library comes configured as a single partition, assigning all elements in the library to the same partition number. Additional partitions are created by adding one or more Library Partitioning Option (LPO) cards with each card managing a single partition. Each LPO card can be connected directly to the SCSI bus of a server or daisy-chained to another SCSI bus.

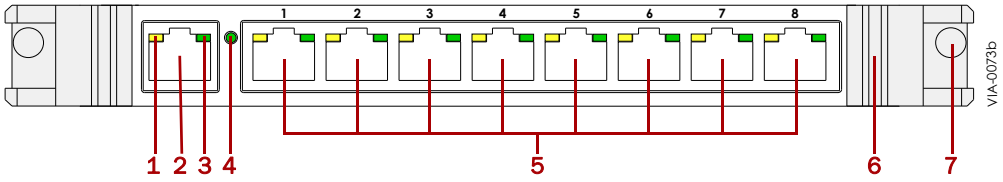
The minimum number of partitions is one with all elements in the library in the same partition while the maximum number of partitions is the lesser of the number of media magazines or tape drives in the library. For example, in a fully loaded NEO 4000 library, the maximum number of either magazines or drives is four, which allows the configuration of up to four SCSI devices using three LPO cards (with the fourth partition being managed by the Library Controller card).

Reserved slots are configured starting at the last slot of the last magazine. They can be configured as Cleaning Slots which are then shared across all partitions.

Installing a Router Card

IMPORTANT: A NEO SERIES internal V.I.A. Router card is required for partitioning. The Router card enables communication between the Library Controller card and the Library Partition Option (LPO) Partition Controller card. It also adds a WebTLC port.

The NEO SERIES internal Router card is a special purpose V.I.A. device designed to inter-connect the Library Controller and an installed Partition Controller card. It provides a way for WebTLC to interface with the NEO library when in a partitioned configuration. To the external network, it functions more as an endpoint device and not as a network router or switch.



1 WAN Activity LED (Amber)
2 WAN Ethernet Port
3 WAN Status LED (Green)
4 100Base-T Speed Indicator (Green)
5 Eight Ethernet Ports, Labeled 1—8, with Activity & Network LEDs
6 Card Handle
7 Screw

Figure B-1: Router Card

1. At the front panel, **power down** the library.
2. Set the library **circuit breakers** to OFF (“O”).
3. Remove and retain the **power cords**.

> **CAUTION:** The internal Router card is designed to function only in the Primary card cage V.I.A. option bays (excluding the far right slot reserved for the Library Controller card) of a NEO 4000. It does not function in the Secondary (lower) card cage.

4. Remove one of the V.I.A. option bay **filler plates** in the Primary card cage. Retain the filler plate for future use.
5. With the WAN port at the bottom, carefully insert the **Router card** into the guide rails of the bay (Figure B-2).

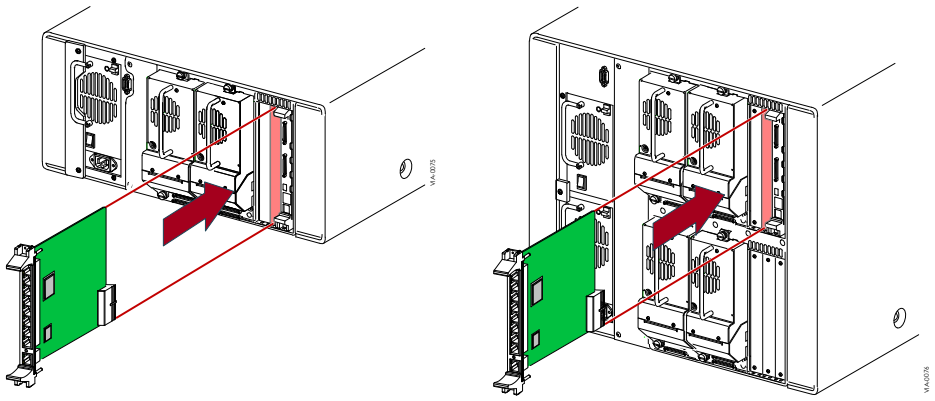


Figure B-2: Inserting the Router Card into the Library

6. Slide the **card** into the bay.

   Resistance will be felt when the Router card begins to mate with the library backplane.

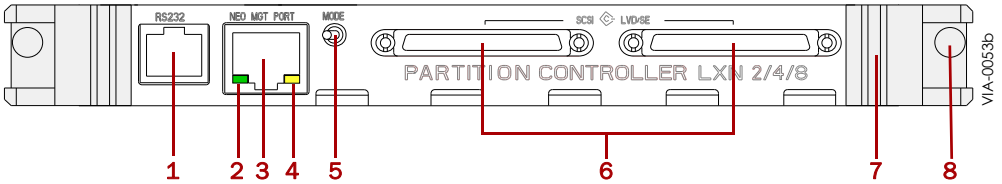
7. Using the card handles, apply just enough force to **seat the card** snugly into the library backplane to ensure proper connectivity.
8. Tighten the hold-down **screws** on the card.

You are now ready to install the LPO card. Once they are in place, you can connect all the cables.

NOTE: If a Router is currently installed and only the LPO card is being added, connect the 10Base-T ports on the LPO card to any available port on the Router card.

Installing a LPO Controller Card

The NEO SERIES Library Partitioning Option (LPO) controller card is a special purpose Virtual Interface Architecture (V.I.A.) device for creating partitions in a NEO SERIES library.



1 RS-232 Serial Port
2 WAN Status LED (Green)
3 WAN Ethernet Port
4 WAN Activity LED (Amber)
5 Mode Momentary Switch
6 SCSI VHDCI Ports (2)
7 Card Handle
8 Screw

Figure B-3: LPO Partition Controller Card Connectors & Indicators

Once the Router card is installed, a Partition Controller card can be installed.

CAUTION: The Library Controller card must always be in the far right slot of the Primary (upper) card cage on the NEO 4000.

1. With the library still powered down, remove one of the remaining V.I.A. option bay **filler plates**.

   Keep the filler plate for future use.
2. With the RS-232 serial port at the bottom, carefully insert the **LPO card** into the guide rails of the bay.

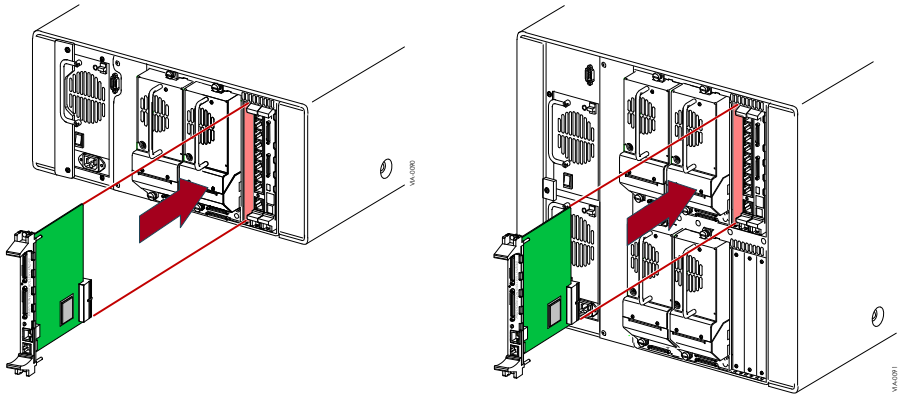


Figure B-4: Inserting the Partition Controller Card into the Library

3. Slide the **card** all the way into the bay.

   Resistance will be felt when the LPO card begins to mate with the library backplane.

4. Using the card handles, apply just enough force to **seat the card** snugly into the library backplane.

5. Tighten the hold-down **screws** on the card.

6. Connect the **SCSI and RJ-45 cables** for your desired configuration.

   NOTE: To assure proper operation, the NEO Router and cabling must be installed before applying power to a NEO SERIES with a Partition Controller card.

7. **Power up** the library.

Additional Menu Items for Partitions

When a NEO SERIES library is partitioned, additional items appear in several GUI menus to help manage the partitions. Table B-1 addresses those new options:

Table B-1: Additional or Changed Menu Items for Partitions

Option/Button	Description
Mail Slot Access	An intermediate screen is displayed for selection of the partition impacted.
Magazine Access	
Move Media	
Status	Partition numbers (such as PØ) are displayed next to the magazines and drives.
Menu > Cartridge Map	An intermediate screen is displayed for selection of the partition impacted.
Menu > Maintenance > Access All Magazines > Unlock All	A message comes up reminding you that this action impacts all the partitions and will cause the partitions to go offline.

Table B-1: Additional or Changed Menu Items for Partitions

Option/Button	Description
Menu > Maintenance: • Clean Drive • Replace Drive • Flash Drive From Tape • Flash Drive From SCSI • Drive Format	An intermediate screen is displayed for selection of the partition impacted.
Menu > SCSC/FC	Partition assignments are shown for each drive.
	The Library SCSI Bus ID button is replaced by a Partition *n* Bus ID button for each partition.

Cabling Configuration Examples

Numerous cabling configurations are available dependent on number of drives and hosts. Shown below is an example with recommended cable configurations.

2 Partitions 4 Drives 2 Hosts

When there are two different operating systems, such as a mix of Solaris and Win2K servers, a NEO library can be partitioned into two virtual libraries (Figure B-5 on page B-6) to accept backup commands from the two different systems. The following example has two drives allocated to each partition.

Since the Library Controller card acts as the initial partition (PØ), only one LPO card is needed to create the second partition (P1). A router card is needed to provide communications between the two partitions.

The following example (Figure B-5) shows how to connect four LTO-2 drives into two partitions in a NEO 4000. The basic steps also work in NEO 2000 libraries.

CAUTION: The Library Controller and LPO Partition Controller cards must be terminated before enabling and configuring partitioning.

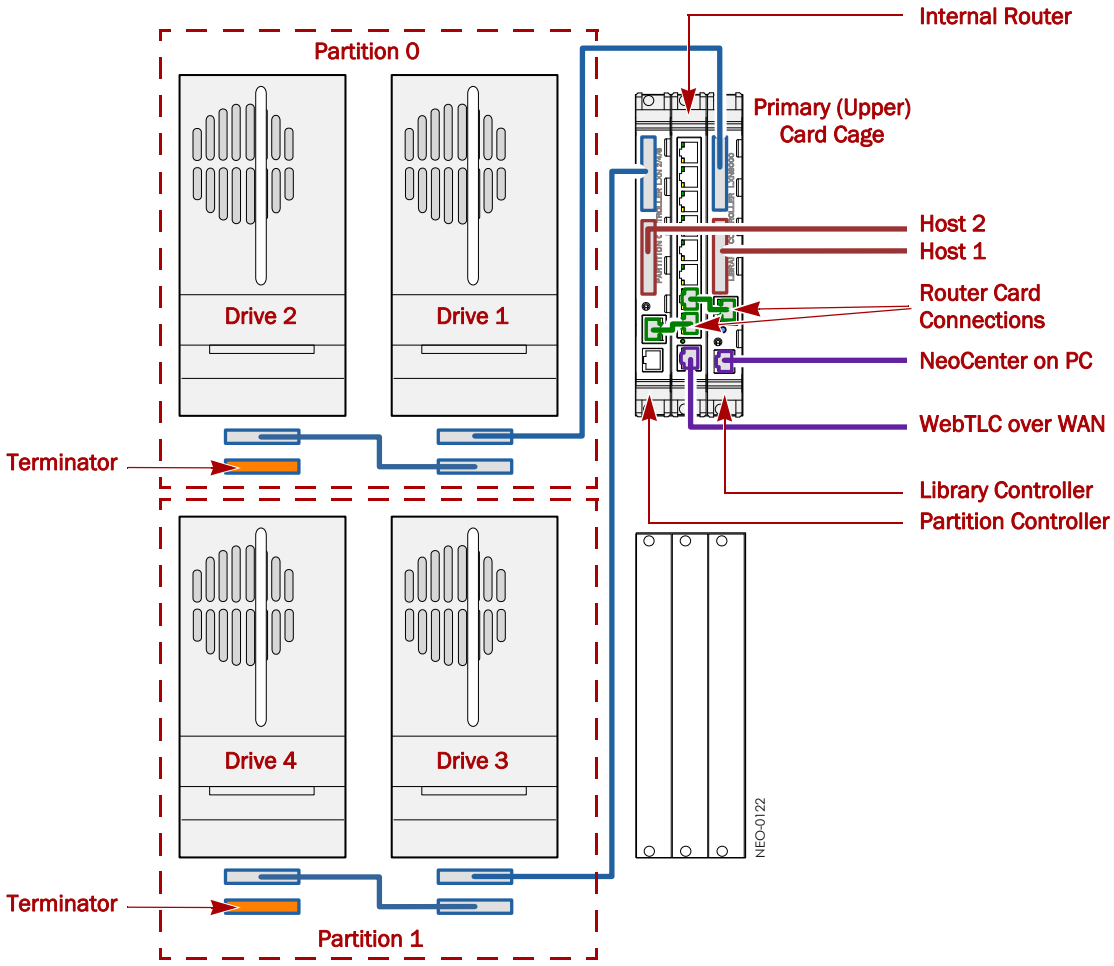


Figure B-5: Network Layout for 4 LTO-2 Drives with 2 Partitions and 2 Hosts

1. Connect two LTO-2 drives to **Partition Ø**.
   - Connect **Drive 1** to the **Library Controller** card.
   - Connect **Drive 1** to **Drive 2**.
   - Install a **terminator** on **Drive 2**.
2. Connect two drives to **Partition 1**.
   - Connect **Drive 3** to the **Partition Controller** card.
   - Connect **Drive 4** to **Drive 3**.
   - Install a **terminator** on **Drive 4**.
3. Using the SCSI ports, connect the NEO 4000 to the **Host systems**.
   - Connect the **Library Controller** to **Host 1**.
   - Connect the **Partition Controller** to **Host 2**.
4. Connect the partitions to the internal **Router** card.
   - Connect the **Library Controller** Ethernet port to the Router.
   - Connect the **Partition Controller** Ethernet port to the Router.
5. Connect the Library Controller serial port to the **Host PC computer** using the provided DB-9 cable with the RJ-11 adaptor.

NOTE: Be sure to connect directly to the Host computer with the NeoCenter software installed on it and NOT the general network.

6. If desired, connect the **Router WAN port** to the WAN.
7. **Power up** the NEO 4000.
8. Using **NeoCenter**, configure the partitions.
   See Chapter 7, "NeoCenter Usage," for the procedure.

2 Partitions 2 Drives 2 Hosts

IMPORTANT: When using higher capacity drives such as LTO-3 or higher, it is strongly recommended that each drive be on a separate SCSI bus.

The following example (Figure B-6) shows how to connect two LTO-4 drives into two partitions in a NEO 2000. The basic steps also work in NEO 4000 libraries.

CAUTION: The Library Controller and LPO Partition Controller cards must be terminated before enabling and configuring partitioning.

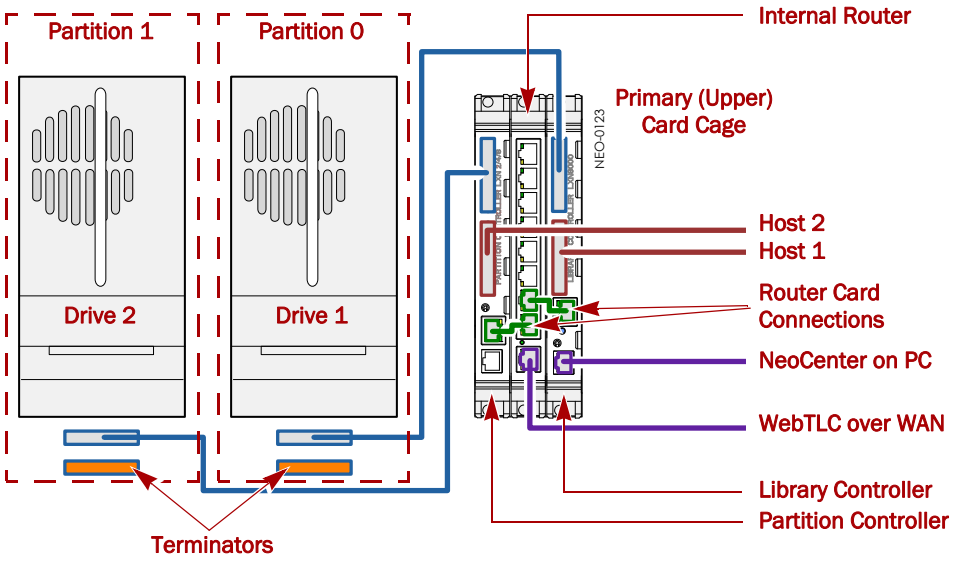


Figure B-6: Network Layout for 4 LTO-2 Drives with 2 Partitions and 2 Hosts

1. Connect one LTO-4 drive to **Partition Ø**.
   - Connect **Drive 1** to the **Library Controller** card.
   - Install a **terminator** on **Drive 1**.
2. Connect the other LTO-4 drive to **Partition 1**.
   - Connect **Drive 2** to the **Partition Controller** card.
   - Install a **terminator** on **Drive 2**.
3. Using the SCSI ports, connect the NEO 4000 to the **Host systems**.
   - Connect the **Library Controller** to **Host 1**.
   - Connect the **Partition Controller** to **Host 2**.

4. Connect the partitions to the internal **Router** card.
   - Connect the **Library Controller** Ethernet port to the Router.
   - Connect the **Partition Controller** Ethernet port to the Router.
5. Connect the Library Controller serial port to the **Host PC computer** using the provided DB-9 cable with the RJ-11 adaptor.

   NOTE: Be sure to connect directly to the Host computer with the NeoCenter software installed on it and NOT the general network.

6. If desired, connect the **Router WAN port** to the WAN.
7. **Power up** the NEO 2000.
8. Using **NeoCenter**, configure the partitions.
   See Chapter 7, "NeoCenter Usage," for the procedure.

Glossary and Acronym List

Address

An address is a data structure or logical convention used to identify a unique entity, such as a particular process or network device.

Back-end

Front-end and back-end are terms used to characterize program interfaces and services relative to the initial user, human or program, of these interfaces and services. A "front-end" application is one that application users interact with directly. A "back-end" application or program serves indirectly in support of the front-end services, usually by being closer to the required resource or having the capability to communicate with the required resource. The back-end application may interact directly with the front-end or, perhaps more typically, is a program called from an intermediate program that mediates front-end and back-end activities.

Bar Code

The machine-readable representation of a product code. Bar codes are read by a scanner that passes over the code and registers the product code. The width of black lines and white spaces between varies. Combinations of lines and spaces represent characters. Overland uses 3-of-9 code (Code 39) where each character is represented by 9 bars, 3 of which are wide.

Bridging

Devices that connect and pass packets between two network segments that use different communications protocol.

Bus or Channel

A common physical path composed of wires or other media, across which signals are sent from one part of a computer to another. A channel is a means of transferring data between modules and adapters, or between an adapter and SCSI devices. A channel topology network consists of a single cable trunk that connects one workstation to the next in a daisy-chain configuration. All nodes share the same medium, and only one node can broadcast messages at a time.

CAT 5 Cable

Short for *Category 5*, it is network cabling that consists of four twisted pairs of copper wire terminated by RJ-45 connectors. CAT 5 cabling supports frequencies up to 100 MHz and speeds up to 100 Mbps. It can be used for ATM, token ring, 100BASE-T, and 10BASE-T networking.

CAT 5 is based on the EIA/TIA 568 Commercial Building Telecommunications Wiring Standard developed by the Electronics Industries Association as requested by the Computer Communications Industry Association in 1985.

Expansion Slot

Area in a computer that accepts additional input/output cards to increase the capability of the computer.

F_port

A *Fabric* port within a Fibre Channel switch that provides a point-to-point link attachment to a single N_Port. F_Ports are intermediate ports in virtual point-to-point links between end ports, for example N_Port to F_Port to F_Port to N_Port using a single Fibre Channel fabric switch.

FL_port

A *Fabric Loop* port within a Fibre Channel switch that is capable of Fibre Channel Arbitrated Loop operations and is connected to one or more NL_Ports via a Fibre Channel Arbitrated Loop. An FL_Port becomes a shared entry point for public NL_Port devices to a Fibre Channel fabric. FL_Ports are intermediate ports in virtual point-to-point links between end ports that do not reside on the same loop, for example NL_Port to FL_Port to F_Port to N_Port through a single Fibre Channel fabric switch.

Fabric

Two or more Fibre Channel switches interconnected to physically transmit data between any two N_ports on a switch or switches.

Failover

The ability to automatically substitute a working system for one which has failed.

FC-AL

Short for *Fibre Channel Arbitrated Loop*. An FC-AL is a Fibre Channel network in which up to 126 systems and devices are connected in a loop topology, with each transmitter connecting to the receiver of the device on its logical right. The Fibre Channel Arbitrated Loop protocol used for transmission is different from Fibre Channel switched and point-to-point protocols. Multiple FC-AL loops can be connected via a fabric switch to extend the network.

Firmware

Software stored in read-only memory (ROM) or programmable ROM (PROM). Firmware is often responsible for the behavior of a system when it is first switched on.

Front-end

See Back-end.

Gigabit Ethernet

Also known as GigE, this Ethernet standard uses a one Gigahertz (1000 Hz) clock rate to move data.

HBA

Short for *Host Bus Adapter*. An HBA is an I/O adapter that sits between the host computer's bus and the Fibre Channel loop and manages the transfer of information between the two channels. In order to minimize the impact on host processor performance, the HBA performs many low-level interface functions automatically or with minimal processor involvement.

Hot Swap

The action of components being removed and replaced while the unit is running, with power to either the component or a device still connected to the unit. Not all components are hot swappable. Please read installation and maintenance instructions carefully.

Internet

A global network of networks used to exchange information using the TCP/IP protocol. It allows for electronic mail and the accessing ad retrieval of information from remote sources.

Initiator Device

A component which originates a command.

IP

Short for *Internet Protocol*. IP specifies the format of packets and the addressing scheme.

iSCSI

Short for *Internet SCSI*. iSCSI is an IP-based storage networking standard for linking data storage facilities, developed by the Internet Engineering Task Force (IETF). By carrying SCSI commands over IP networks, iSCSI is used to facilitate data transfers over intranets and to manage storage over long distances. The iSCSI protocol is among the key technologies expected to help bring about rapid development of the storage area network (SAN) market, by increasing the capabilities and performance of storage data transmission. Because of the ubiquity of IP networks, iSCSI can be used to transmit data over local area networks (LANs), wide area networks (WANs), or the Internet and can enable location-independent data storage and retrieval.

iSNS Server

Short for *Internet Storage Name Service* Server. This is a server on an iSCSI SAN providing name registration service and query capability to other iSCSI clients per the IETF draft iSNS specification.

LAN

Short for *Local Area Network*. A network connecting computers in a relatively small area such as a building.

LED

Short for *Light-Emitting Diode*. An LED is a type of diode that emits light when current passes through it. Visible LEDs are used as indicator lights on electronic devices.

LTO

Short for *Linear Tape Open*, a technology that was developed jointly by HP, IBM and Certance (Seagate). It is ideally suited for backup, restore and archive applications and provides reliability in both stand-alone and automated environments. An Ultrium format generation 3 cartridge has a capacity of up to 800 GB (2:1 compression) and up to 400 GB native, while the Ultrium format generation 2 has a capacity of up to 400 GB (2:1 compression) and up to 200 GB native.

LUN

Short for *Logical Unit Number*. A SCSI or Fibre Channel device identifier. LUN is a subdivision of a SCSI target.

LVD

Short for *Low Voltage Differential*. LVD is a method of powering SCSI cables that will be formalized in the SCSI-3 specifications. LVD uses less power than the current differential drive (HVD), is less expensive, and allows for higher speeds such as those of Ultra-2 SCSI. LVD requires 3.3 volts (versus 5 volts for HVD).

MAC Address

Short for *Media Access Control address*, a hardware address that uniquely identifies each node of a network.

Mapping table

A table indexed by sequential LUN values, indicating the selected BUS:TARGET:LUN devices. Mapping tables are used by routers and bridges like the GEOi to perform Ethernet-to-SCSI pathing.

MD5 Algorithm

MD5 is a way to verify data integrity, and is much more reliable than checksum and many other commonly used methods.

N_port

A *Node* port connects via a point-to-point link to either a single N_Port or a single F_Port. N_Ports handle creation, detection, and flow of message units to and from the connected systems. N_Ports are end ports in virtual point-to-point links through a fabric, for example N_Port to F_Port to F_Port to N_Port using a single Fibre Channel fabric switch.

Network Interface Card (NIC)

A card that provides network communication capabilities to and from a computer.

NDMP

Short for *Network Data Management Protocol*. A protocol standard used by some Network Attached Storage systems to provide an industry standard means to do backup and restores of the NAS system without the need for 3rd party agents to be installed on the NAS device. Also see NDMP.org for further details.

NL_port

A *Node Loop* port is capable of arbitrated loop functions and protocols. An NL_Port connects via an arbitrated loop to other NL_Port and at most a single FL_Port. NL_Ports handle creation, detection, and flow of message units to and from the connected systems. NL_Ports are end ports in virtual point-to-point links through a fabric, for example NL_Port to F_Port to F_Port to N_Port using a single Fibre Channel fabric switch. In the absence of a fabric switch FL_Port, NL_Ports can communicate with other NL_Ports in virtual point-to-point links through a FC-AL open loop circuit often through FC-AL (Arbitrated Loop) hub or loop switch devices.

Node Name

This is an eight-byte, 16-character hexadecimal number, uniquely identifying a single fibre device. It incorporates the World Wide Name and two additional bytes that are used to specify the format. In a host system with multiple FC ports, all adapters typically use the same Node Name, but unique Port Names.

NVRAM

Abbreviation of Non-Volatile Random Access Memory, a type of memory that retains its contents when power is turned off.

Port Name

This is an eight-byte hexadecimal number, uniquely identifying a single host HBA port. It incorporates the World Wide Name and two additional bytes that are used to specify the format and indicate the port number.

PTP

Short for *Point-to-Point*. PTP is the common mode of attachment to a single host. PTP is sometimes used to attach to a Fibre Channel switch for SAN connectivity.

RETMA

Short for *Radio-Electronics-Television Manufacturers' Association*. It is the common name given for a 19-inch distribution frame rack for mounting components.

Router

A router is a device that enables connectivity between Ethernet network segments.

SAN

Short for *Storage Area Network*. A shared storage architecture connecting computers and storage devices for online data access. Each connected system can directly access any attached storage device. Usually refers to the network behind servers that links one or more servers to one or more storage systems.

SCSI

Short for *Small Computer System Interface*. SCSI is an industry standard for connecting peripheral devices and their controllers to an initiator. Storage devices are daisy-chained together and connected to a host adapter. The host adapter provides a shared bus that attached peripherals use to pass data to and from the host system. Examples of devices attached to the adapter include disk drives, CD-ROM discs, optical disks, and tape drives. In theory, any SCSI device can be plugged into any SCSI controller.

SCSI addressing

Each device supported by a SCSI adapter has its own unique SCSI address, which dictates the device's priority when arbitrating for access to the SCSI bus. A SCSI address of 7 has the highest priority. For a fast/wide SCSI adapter that supports up to 16 devices, the next highest priority address is 6, then 5, 4, 3, 2, 1, 0, 15, 14, 13, 12, 11, 10, 9, and 8. The narrow SCSI adapter supports up to eight devices, including itself. The SCSI address 7 has the highest priority, followed by 6, 5, 4, 3, 2, 1, and 0.

SCSI bus

A SCSI bus provides a means of transferring data between SCSI devices. A SCSI bus is either an 8- or 16-bit bus that supports up to 8 or 16 devices, including itself. The bus can consist of any mix of initiators and targets, with the requirement that at least one initiator and one target must be present.

SCSI device

A SCSI device is a single unit on a SCSI bus that originates or services SCSI commands. A SCSI device is identified by a unique SCSI address. SCSI devices can act as initiators or targets.

SCSI port

A SCSI port is an opening at the back of a router that provides connection between the SCSI adapter and SCSI bus.

Storage Area Network

See SAN.

Tape Cartridge

A magnetically coated strip of plastic in a plastic housing on which data can be encoded. Storing data on tapes is considerably cheaper than storing data on disks. Tapes also have large storage capacities, ranging from a few hundred kilobytes to several gigabytes. They are generally used for long-term storage and backup, or for transporting large amounts of data. Tapes come in a variety of sizes and formats.

Tape Drive

A device, that reads data from and writes it onto a tape.

Target

A target is a device (peripheral) that responds to an operation requested by an initiator (host system). Although peripherals are generally targets, a peripheral may be required to act temporarily as an initiator for some commands (for example, SCSI COPY command).

Telnet

A terminal emulation program for TCP/IP networks such as the Internet. The Telnet program runs on a computer and connects it to a server on the network. You enter commands through the Telnet program and they will be executed as if you were entering them directly on the server console. This enables you to control the server and communicate with other servers on the network. To start a Telnet session, you must log in to a server by entering a valid user name and password. Telnet is a common way to remotely control Web servers.

Terminator

A terminator refers to the electrical connection at each end of a SCSI bus. The terminator is composed of a set of resisters, or possibly other components. The function of a terminator is to provide a pull-up for open collector drivers on the bus, and also impedance matching to prevent signal reflections at the ends of the cable. SCSI buses require that a terminator be placed on the SCSI connector on the last SCSI peripheral. Data errors may occur in a SCSI bus that is not terminated.

Topology

Logical layout of the parts of a computer system or network and their interconnections. There are two types of topology: physical and logical. The physical topology of a network refers to the configuration of cables, computers, and other peripherals. Logical topology is the method used to pass the information between workstations.

USB (Universal Serial Bus) Port

A hardware interface for low-speed peripherals such as the keyboard, mouse, joystick, scanner, printer, and telephony devices.

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